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ABSTRACT

This document presents the proceedings and addresses of the 25th annual conference of the Association of Graduate Schools in the Association of American Universities. Presentations cover: doctorates in the seventies, postdoctorates and employment, graduate student support, and methodology toward assessing quality in Ph.D. programs. Reports of the committee on communications with the public and the committee on testing are included. (MJM)

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JOURNAL OF PROCEEDINGS AND ADDRESSES OF THE ASSOCIATION OF GRADUATE SCHOOLS IN THE ASSOCIATION OF AMERICAN UNIVERSITIES

25th annual conference, 18-19 October 1973, New Orleans

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JOURNAL OF PROCEEDINGS AND ADDRESSES—1973

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Journal of Proceedings and Addresses of the Twenty-fifth Annual Conference of the Association of Graduate Schools in the Association of American Universities

NEW ORLEANS, LOUISIANA, 18-19 OCTOBER 1973

David N. Redman, Editor

THE GRADUATE SCHOOL
PRINCETON UNIVERSITY
PRINCETON, NEW JERSEY

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THE TWENTY-FIFTH ANNUAL CONFERENCE of the ASSOCIATION OF GRADUATE SCHOOLS

THE Twenty-fifth Annual Conference of the Association of Graduate Schools in the Association of American Universities took place in New Orleans on October 18 and 19, 1973. Sessions were held at the Fairmont Roosevelt Hotel with Dean Robert M. Bock presiding.

DELEGATES ATTENDING THE CONFERENCE

AHMADJIAN, VERNON, Dean, Clark University
ANDREWS, FREDERICK N., Vice-President and Dean, Purdue University
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BARSENESS, RICHARD W., Associate Dean, Northwestern University
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BOCK, ROBERT M., Dean, University of Wisconsin
BOLLIER, E. PHILIP, Associate Dean, Tulane University
BORCHERS, ROBERT R., Associate Dean, University of Wisconsin
BRENNAN, MICHAEL J., Dean, Brown University
BRODBECK, MAY, Dean, University of Minnesota
CAMPBELL, ERNEST Q., Dean, Vanderbilt University
CARLSMITH, J. MERRILL, Associate Dean, Stanford University
CLARK, ROGER G., Assistant Dean, University of Illinois, Urbana
DEENER, DAVID R., Provost and Dean, Tulane University
DUGAN, L. R., JR., Assistant Dean, Michigan State University
ELBERG, SANFORD S., Dean, University of California, Berkeley
FRAENKEL, GEORGE K., Dean, Columbia University
GOLDBERG, COLMAN, Associate Dean, Northwestern University

HARMAN, CHARLES M., Associate Dean, Duke University
HITSCHFELD, W. F., Dean, McGill University
HORTON, FRANK E., Dean, University of Iowa
HOWELL, BENJAMIN F., JR., Associate Dean, Pennsylvania State University
JACKSON, BLYDEN, Associate Dean, University of North Carolina
JACOBSON, NORMAN L., Associate Dean, Iowa State University
JONES, LYLE V., Vice-Chancellor and Dean, University of North Carolina
KELLER, PATRICIA, Associate Dean, University of Washington
KENNEDY, E. R., Dean, Catholic University
KERNAN, ALVIN B., Dean, Princeton University
KIBBEY, DONALD E., Vice-President for Research and Graduate Affairs, Syracuse University
KILROY, JAMES F., Associate Dean, Vanderbilt University
KINSMAN, ROBERT STARR, Acting Dean, University of California, Los Angeles
LAMBOOY, JOHN P., Dean, University of Maryland
LIEB, I. C., Associate Dean, University of Texas
LINDZEY, GARDNER, Vice-President and Dean, University of Texas
LIPETZ, MILTON E., Dean, University of Colorado
LORAM, IAN C., Associate Dean, University of Wisconsin
LUDWIG, ERNEST H., Associate Dean, Pennsylvania State University
MAU, JAMES, Associate Dean, Yale University
MAY, WILLIAM W., Associate Dean, University of Southern California
MAYO, CHARLES G., Dean, University of Southern California
MCCARTHY, JOSEPH L., Dean, University of Washington
MCCRONE, JOHN D., Associate Vice President, University of Iowa
MCFARLAND, ROBERT, Dean, University of Missouri
MCGRAEL, MICHAEL I., Development Officer, Brown University
MCKINNEY, JOHN D., Dean, Duke University
MILLER, CAROL E., JR., Assistant Dean, University of Wisconsin
MINKEL, C. W., Acting Dean, Michigan State University
MORROW, RALPH E., Dean, Columbia University
MOSES, LINCOLN E., Dean, Stanford University
NOVICK, AARON, Dean, University of Oregon
O'CONNOR, JAMES P., Vice-Provost and Dean, Catholic University
O'KANE, DANIEL J., Acting Dean, University of Pennsylvania
PELCZAR, MICHAEL J., JR., Vice-President for Graduate Studies and Research, University of Maryland
PINGS, CORNELIUS J., Dean, California Institute of Technology
RAIMI, RALPH A., Associate Dean, University of Rochester
REDMAN, DAVID N., Assistant Dean, Princeton University

ROADEN, ARLISS L., Vice Provost and Dean, Ohio State University
ROTHBLATT, BEN, Assistant to the Provost, University of Chicago
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TAAFEE, JAMES G., Dean, Case Western Reserve University
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YAMAGUCHI, HARRY G., Acting Dean, Indiana University
ZAFFARANO, D. J., Dean, Iowa State University
ZAUCHENBERGER, HERWIG G., Dean, University of Missouri
ZIMMERMAN, KENNETH C., Assistant Dean, University of Minnesota

GUESTS

BRENEMAN, DR. DAVID W., Staff Director, National Board on Graduate Education
CARTTER, DR. ALLAN M., Graduate School of Education, University of California, Los Angeles
HARMON, DR. LINDSEY R., Director of Research, National Research Council
KALUDIS, DR. GEORGE, Vice-Chancellor, Vanderbilt University

ASSOCIATES

ARLT, DR. GUSTAVE O., President Emeritus, Council of Graduate Schools in the United States
BURNS, DR. RICHARD L., Director, College and University Programs, Educational Testing Service
JACKSON, DR. FREDERICK H., Director, Committee on Institutional Cooperation
KIDD, DR. CHARLES B., Executive Secretary, Association of American Universities
PAGE, DR. J. BOYD, President, Council of Graduate Schools in the United States

REPORT OF THE EXECUTIVE COMMITTEE

BY THE PRESIDENT, DEAN ROBERT M. BOCK

As the President of the Association, I would like to report on actions that your Executive Committee has taken.

The first of these was to request your President to appoint a Committee on Resolutions for the current meeting. I would ask our member deans Stokes, Spriestersbach and Elberg to serve with Dean Elberg as chairman. At a business meeting tomorrow official actions on resolutions springing from our discussions will be taken.

I would further like to report that we have instructed the incoming President to change some committee appointments and functions. It has been decided that the Commitee on International Education will not be reappointed. Its concerns will be brought forward as appropriate to the Committee on Policy if there needs to be action between our meetings, or to the Committee on Resolutions if it is an action that can be resolved during this meeting.

Another item that has been discussed by the Executive Committee is the Association's providing an endorsement for a proposal from the GRE Board to facilitate the enrollment of minority graduate students. This proposal has already been discussed by the Council of Graduate Schools. Member deans Moses and Pelczar have been engaged in discussions which developed this proposal. I would ask Dean Pelczar to give us some background on it.

DEAN MICHAEL J. PELCZAR, JR.

It is my pleasure to bring to your attention *A Proposal to Facilitate Minority Graduate Student Enrollment* which we hope you will endorse. I would first like to summarize some of its features.

As Dean Bock has indicated, it has been endorsed by the GRE Board and by the Executive Committee of the Council of Graduate Schools. The proposal intends to extend the activities which the GRE Board undertakes. The Board supports such research programs as identifying differential word associations and item performance for black and white examinees, locating potential minority graduate students, arranging for fee waivers for minority applicants, and several more.

In late 1971 the Board recognized the need for a broad-based program to deal with areas of minority student affairs unmet by programs already underway. A proposal including these eight specific items has been developed.

1. Collection and dissemination of information about current minority enrollment, faculty, and staff at graduate and undergraduate institutions; dollar support for minority-related programs and course offerings; and the relation of minority programs to graduate schools overall;
2. Evaluation of policies and attitudes of graduate institutions toward minority students;
3. Creation of an advocacy mechanism and the creation of guidelines for graduate institutions involved in minority recruitment;
4. Creation of separate referral mechanisms for individuals from white and non-white institutions to increase the effectiveness of recruitment and admission;
5. Creation of a mechanism to influence funding agencies;
6. Improvement of counseling and guidance of minority students at undergraduate and graduate level;
7. Participation of minority individuals in the design and operation of these services;
8. Creation of maximum institutional commitment to and participation in these services.

The basic purpose of the proposal, then, is to facilitate increased enrollment of minority students at the graduate level in the United States by providing a mechanism through which new activities can be coordinated with existing activities and existing activities can be strengthened and coordinated with each other.

If the proposal is funded it would be governed by a body of graduate deans and minority group representatives. It would be independently administered. The Association would be under no obligation, either administratively or financially.

It is our intention to bring this to the attention of the Resolutions Committee. Hopefully, this group will judge it appropriate to bring a resolution to the Association at its meeting tomorrow.

DOCTORATES IN THE SEVENTIES, POSTDOCS AND EMPLOYMENT

BY DR. LINDSEY R. HARMON
OF THE NATIONAL RESEARCH COUNCIL
WITH INTRODUCTION BY DEAN ROBERT M. BOCK

Dean Bock:

After the meeting of the Council on Federal Relations, a discussion took place about some of the uncertainties that face graduate schools today as they plan and try to carry out their functions. These uncertainties are as great as I can ever remember, and their magnitude is far greater than I can ever recall. In this discussion it became evident that the real impact of Federal cuts in graduate student support and graduate training programs will be felt more deeply in the class that will enroll this coming September, than in continuing classes. Many schools had been fortunate in getting their training grant offers out. There was a good deal of cooperation here by the National Institutes of Health in trying to carry people through, but the real impact of the loss of graduate student support will be felt next September.

We have great uncertainty about how to face with certain actions an uncertain future. What can individual graduate schools do to plan for their own futures? What can they do as a group to inform appropriate representatives of the nation's needs for research manpower? I believe that we will all be helped by having more information on this situation and its trends. We are therefore very pleased that Dr. Lindsey R. Harmon of the National Research Council is with us this morning to discuss "Doctorates in the Seventies, Postdocs and Employment."

Dr. Harmon:

Ladies and gentlemen, somebody suggested that I get a more glamorous title for this because the last time I tried it under this title nine people showed up, including the panel.

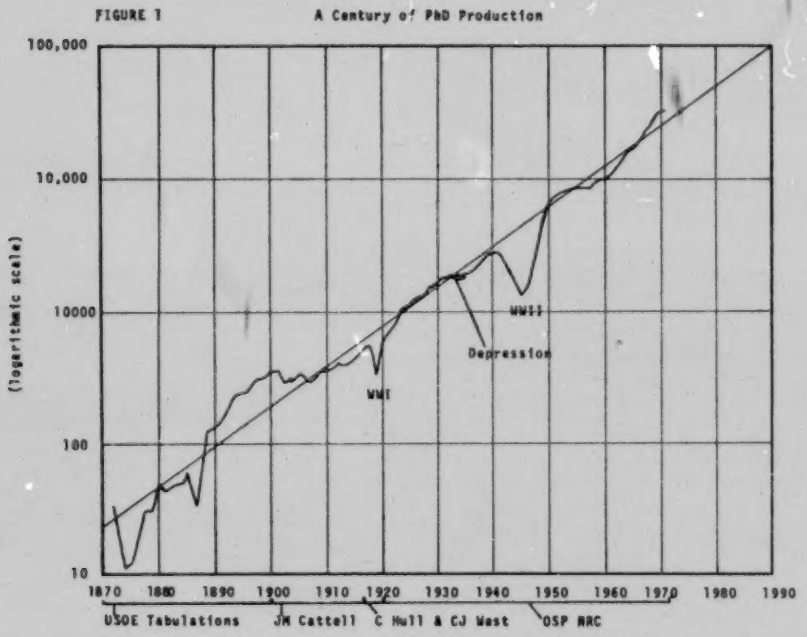
Most of what I have to say will be on the screen here. (Indicating) They say that one picture is worth ten thousand words; in that case we are saving about a hundred thousand today. I hope you will appreciate that.

You have invited me here to give you some information regarding the Ph.D.'s of the recent past, their postdoctoral experience, including both training and employment, and some ideas about the future.

Regarding these matters, since I come from Washington, I want to make one thing perfectly clear at the outset: that I am speaking only for myself as an individual. Nothing I say should be taken in any way as expressing the point of view of the National Research Council or the National Academy of Sciences. I will "tell it like it is" to the best of my ability, and the data regarding Ph.D.'s of the recent and remote past are authoritative. With respect to the future, however, I am venturing only one man's opinion; I cannot be sure that even one member of the National Academy of Sciences would agree with what I have to say. When I get through perhaps none of you will either.

I do, however, appreciate the opportunity to give you the facts, and my interpretation of where these facts may lead. Both the facts and the interpretations put on them, particularly by academic leaders, are vitally important. For I believe that we are at a turning point in higher education and advanced training. Further, I believe the facts that I will show you will demonstrate that this is true. The question is, as I see it: "Which way do we turn?"

Figure 1 (below) represents the growth of doctorate outputs in the United States over the past century. The vertical scale, you will notice, is logarithmic, and the scale covers four orders of magni-



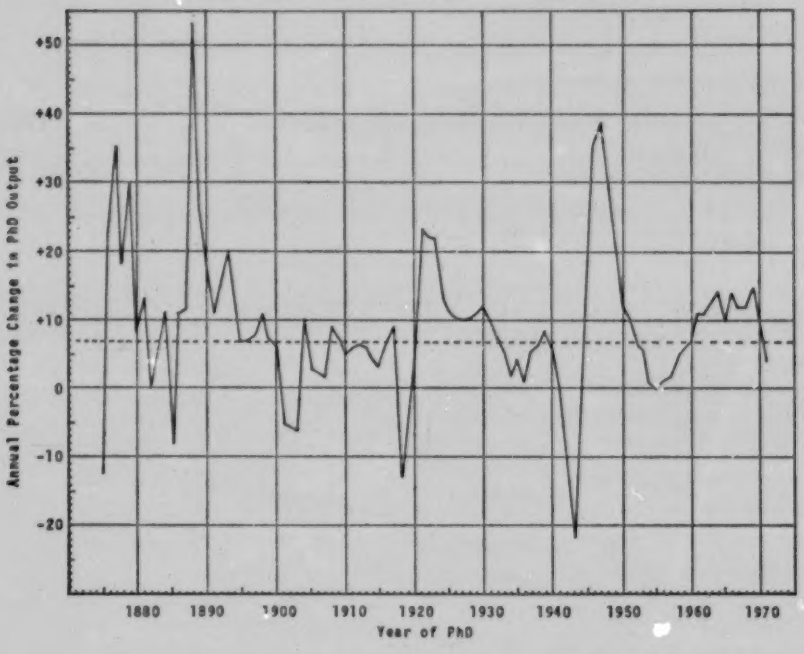
tude from ten Ph.D.'s per year to one hundred thousand. (The advantage of a logarithmic scale is that it transforms an exponential growth curve into a straight line.) Looking at that straight line drawn through the curve of actual production in year-to-year fluctuations, one observer who has been intimately concerned with higher education for many years remarked that it looks like a law of nature. But that law, if one were to interpret it so directly, would be misleading. The straight line represents a seven percent growth increment. It will immediately be apparent that extending the scale by two orders of magnitude, extending it fifty percent farther upward, would bring the line to the point where it intercepts the growth of the U.S. population. In about fifty more years, this seven percent line will reach the U.S. population birth rate. Unless we intend to give Ph.D.'s as birth certificates, or even if we do, that line represents the limit of growth.

I hasten to add that we are forgetting foreign students. The only exception to this limit of growth, then, would be that if we intend to provide for the graduate education of the whole world population.

As neither of these alternatives seems likely, we must look forward to a tapering-off of this growth curve, which I believe has begun. Not an end to growth, not by any means, although we certainly cannot sustain the growth rate of the 1960's, which was twelve percent per annum, and it is very doubtful that we can much longer sustain even the seven percent per annum growth rate. Just why, and what this will mean, I hope to touch on, although within the time at my disposal this morning, I can hope only to mention the main factors, and cannot expect to deal with them in any serious detail.

The second figure (p. 9) is neither a seismograph, nor an electrocardiograph, nor even a polygraph of an ex-Vice President. It represents a transform of the first graph and shows the year-to-year fluctuations and growth rate of Ph.D. output over the past century. You will note that the first portion is more choppy; this is merely a phenomenon of small numbers and their unreliability. When we come to the second half of the chart, the big fluctuations are those induced by wars and their aftermath. Note the drastic dips during World Wars I and II, followed by huge swings immediately following. Even the dip in the 1950's is a delayed effect of World War II. People who went into the armed services directly from high school were delayed in entering college and graduate education. Minor dips are recorded in depression eras; in the Great Depression of the 1930's Ph.D. output dropped from about ten percent per annum to nearly zero. We were just recovering from that drop in the Depression when we entered World War II, which caused the precipitous downward plunge of the 1940's. No such catastrophic effect was produced by the Korean and

FIGURE 2 Percentage Annual Changes in PhD Output
US Universities 1875-1972 (three-year moving average)



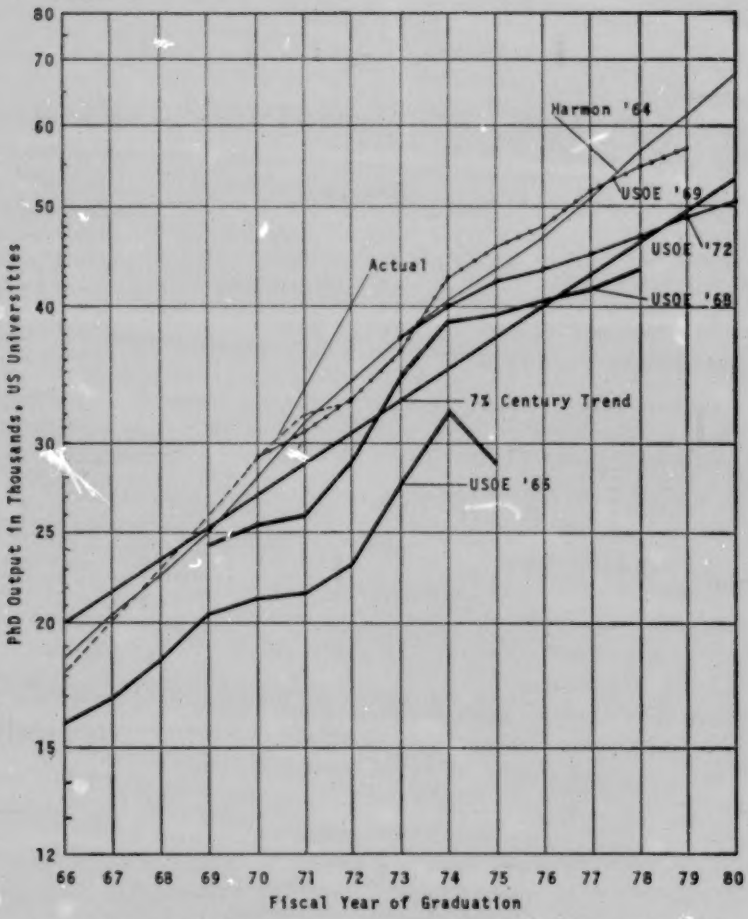
Vietnam Wars; these were important events in many ways, but they did not have a marked direct effect on Ph.D. output.

The solid line you see is the percentage annual change. The horizontal dashed line is the seven percent line that you saw in the first graph. So, you see we are down to about three percent annual increment at the present time.

If you were expecting me to come up with a projection of Ph.D. output for the 1970's based on recent data, I am afraid I will have to disappoint you. In 1964 I made a projection for the years up to 1980, and I am glad to share that with you. But I warn you that it was made more than nine years ago, and while it has been fully validated to date, I am not at all confident that it will be further validated in the future. However, I do have some other projections to share with you.

The U.S. Office of Education has made a number of projections for several years, and the next figure (p. 10) shows the annual output in thousands. This chart shows a series of the U.S.O.E. projections, my 1964 projections, and the actual output. The figures of national

FIGURE 3



Projections of Doctorate Output: Harmon 1964; USOE 1965, 1968, 1969, 1972; Long-term 7% Trend Line; and Actual Output by Fiscal Year 1966-1980
Semi-logarithmic Scale

output are taken from the Office of Scientific Personnel data, which you helped to prepare by getting people to turn in the surveys.

You will note that, in the U.S.O.E. figures, the projections are most nearly accurate for the years immediately ahead, and vary most widely from actuality as the distance into the future is extended. Furthermore, their projections have been somewhat improved over time; whether the pessimistic trend of the latest projection, the 1972 projection, is realistic or not, I do not know. None of us can know in

advance. I do not even know in detail the method they used to arrive at their projections. For what it's worth, let me explain how I made my projection in June of 1964, and that will explain why I believe it's running out now.

My method is, quite simply, an inertia model, following in a rather simple-minded way, Newton's second law. Ph.D. output is a massive operation, and it attains its own momentum. Unless something acts upon it to change it, it goes along pretty much at its own speed. Wars and severe depressions, as we have seen, are massive outside forces acting on the whole process of higher education, and we have seen what they can do to growth rates. But what may be expected if there are no wars or depressions, but a reasonable prosperity and peace?

For an answer, I turned back, in 1964, to the so-called period of normalcy in the 1920's after we had recovered from the effects of World War I. What I saw was an average annual growth rate of ten percent per annum, but I noted that this was not a constant rate. These figures have some rhythm to them. So I projected an average annual growth rate for the ensuing fifteen years of about ten percent, with a bit of rhythm added. The rhythm, I estimated, had a fifteen year swing from crest to crest, so I modified the ten percent yearly figure above and below that average amount, and what I came up with has been on the record since 1964. The graph shows my estimates, here converted from calendar years to fiscal years, which are the functional equivalent of academic years.

This is, of course, a very simple-minded approach, and yet it has worked far better than anybody else's for a decade. I believe, however, that time may be running out on it, for we are in a period of transition, in which the old inertial forces may be waning. By another way of looking at it, it may be subject to outside forces of great strength, but without the dramatic impact of wars and depressions. Perhaps, to use another phrase from Washington, we are "turning slowly, slowly, in the wind."

Before getting down to the basic dynamics of what's happening, or may be happening, let me present a few more figures. One of these concerns geographic changes in the locus of Ph.D. production. By condensing the usual nine census regions, I have shown Ph.D. output in four general regions of the country (Figure 4, p. 12). The usual census region five I have split at the Potomac River, the old dividing line from the Civil War days. This dividing line has historic significance, not primarily for military reasons, but because a pattern of economic and cultural development ensued which only now, a century later, is being overcome. So, the four main regions are the West Coast, the Mountain and Southern states, the Mid-West, and the

FIGURE 4

Division of the US into Four Regions for Comparison of PhD Production

Northeast, here defined as all that territory from Bangor to Watergate. The growth rates of Ph.D. output for each of these territories, over the past fifty years, is shown on the next figure (p. 13), which is also semilogarithmic to enable the eye to follow more readily what has been happening, and to compare the growth rates of one region with another.

The contrasts are rather striking, particularly if you project the growth curves only two years into the future. The South and Mountain states, which in the early 1920's had almost negligible Ph.D. output, are growing at a tremendous rate, and by 1975 may overtake the Mid-West and the Northeast. The Pacific Coast, with a somewhat less spectacular growth rate, is, however, also fueled by a general population growth, and may sustain its Ph.D. growth for a long time to come. A simple projection of the straight-line trends from this graph will have the West Coast intersecting the output of the others about the end of this century. But so many things can happen before that point that I would not trust a momentum model that far. What is quite apparent, however, is a trend toward homogeneity; the four regions are less different now than they were in the early days, and this homogenizing process will probably go on for a long time.

This geographic approach is an interesting one, but an even more informative one is an approach which presents the output of Ph.D. institutions in terms of the time at which they entered the Ph.D. ball game (Figure 6, p. 14). Data from the Office of Scientific Personnel begins with 1920. As nearly as I can determine, there were forty-one

FIGURE 5

PdD Production by Four-year Periods,
1920-1971 in Four Areas of the US

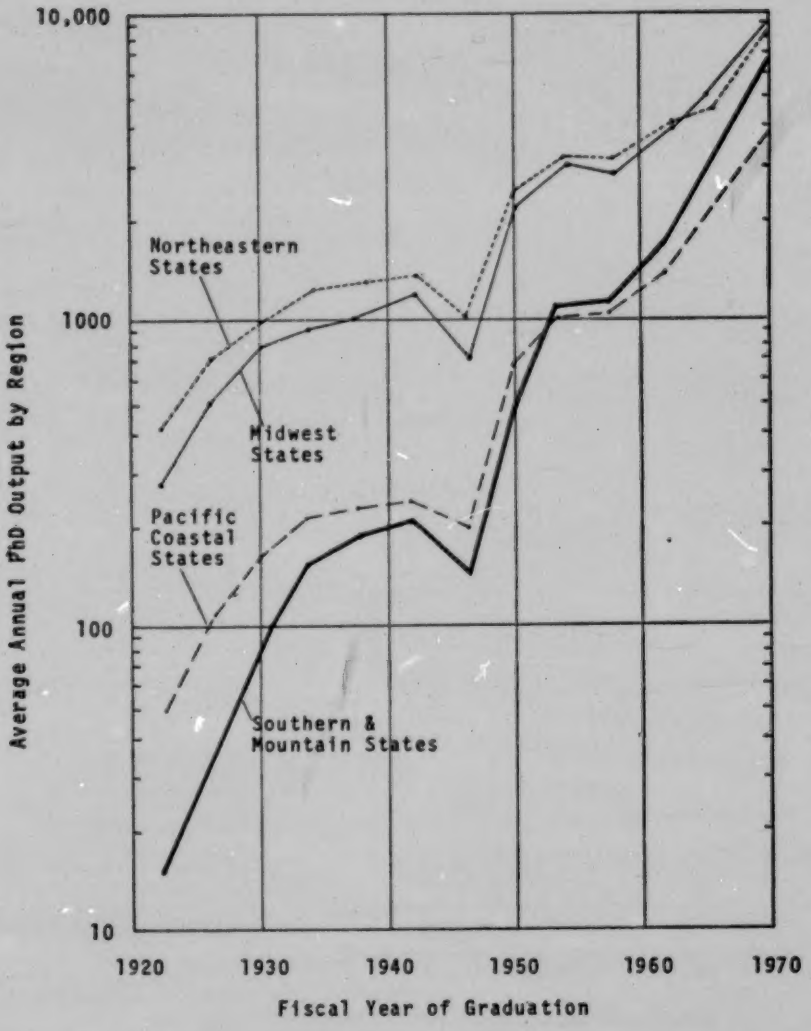


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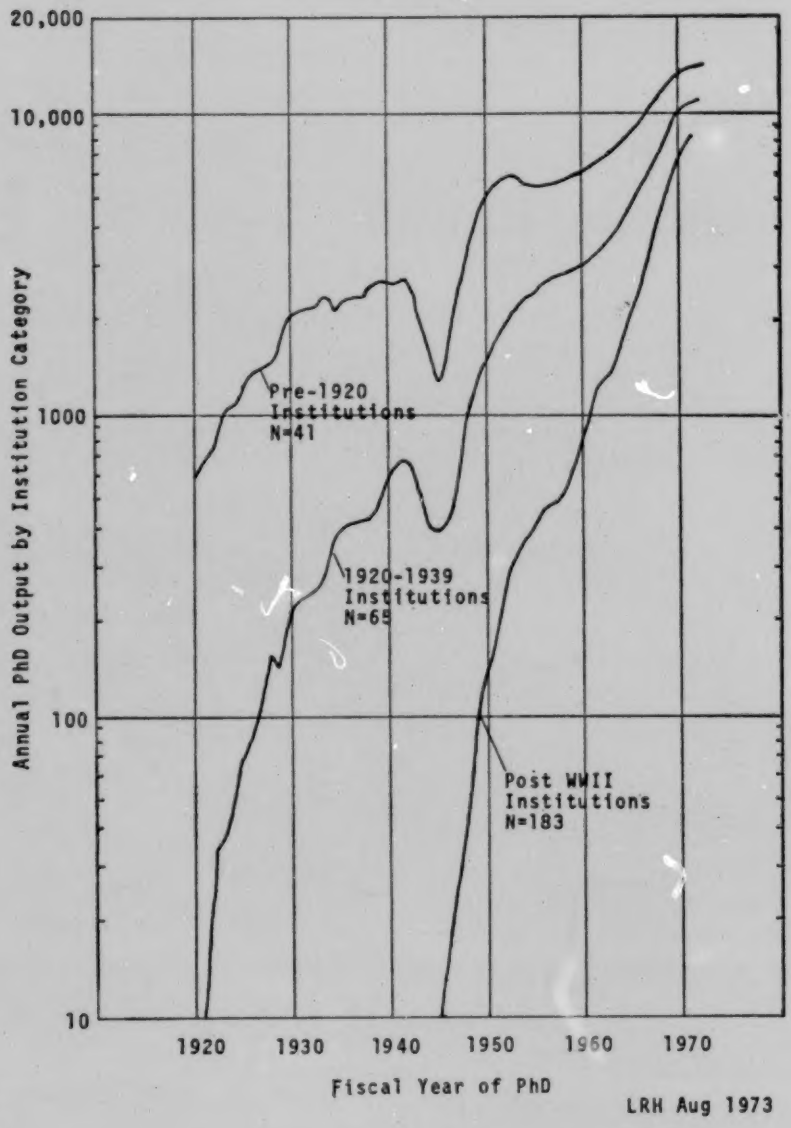
FIGURE 6

PhD Output 1920-1972 by Three Groups of Graduate Institution



universities granting Ph.D.'s at that time; thirty-eight more began granting Ph.D.'s during the 1920's, twenty-seven more during the 1930's, and so forth. At the present time there are 289 institutions granting third level research degrees. Now, if we take the output of three such groups of universities and chart them for the past fifty years, this is what you find: The oldest universities were of course the "only game in town" in 1920, and have remained dominant to the present time, but the "class of the 1920's and 30's" then grew rapidly, followed in turn by the post-World War II set with a still faster growth rate.

Moreover, there is a strong correlation between the geographic and chronological sets of universities. Studies of geographic migration made over the past decade indicate quite clearly that Ph.D.'s produced in California, the Mid-West, and the Northeast have been moving to the South and the Mountain states. To some extent they have taken jobs there in government installations and in business and industry. But primarily they have been providing the staff whereby the newer institutions in these regions have grown. The centers of excellence have turned out huge numbers of Ph.D.'s who have migrated to the newer centers for academic employment. So, the older and more prestigious universities—I take it those you represent—can look to the newer centers and say, "These are our children." By their fruits shall ye know them. If the older centers of excellence have been producing an excellent product, then the newer institutions have been receiving an excellent product to man their departments.

The folklore is slow to catch up with this process, and the Cartter and the Roos-Andersen ratings do not reflect a full awareness of this process. Other indices, however, are a bit more rapid in their response, and evidence is beginning to accumulate that the products of these newer institutions are contributing their fair share to the scientific and scholarly output of the nation. As *of* today, we have only scanty evidence of this trend. I hope that by this time next year we will have more hard quantitative evidence. The evidence we do have relates to the scientific publications of the bioscience graduates of U.S. universities, as shown in the compilations of the Institute for Scientific Information for the period of the 1960's, and even more important, the citations to those publications on the part of the world scientific community. These preliminary results have included a number of surprises. Relatively unknown institutions have been turning out Ph.D.'s who publish, and are cited, at rates that rival those of the graduates of our best institutions. I expect that more surprises are on the way.

But turning back for a moment from quality to quantity, why expect continued growth from these newer institutions? For one thing,

they have been hit less hard by the cutbacks in federal funding that have been so severe over the past five years. They got less from the federal government in the first place, mainly because federal dollars went "where the brains were." Note the past tense! The newer institutions are more dependent on state legislatures and probably have been finding their underdog position not entirely unfavorable in this connection. In the future, no doubt, the newer schools will come to depend more on federal dollars, either directly through fellowships, traineeships, and research grants, or indirectly through various forms of revenue sharing. The trend, in any case, is likely to shift relatively in their favor compared with the older centers of excellence. That brings us right up against the real nub of the question: What is excellence, and how do you measure it?

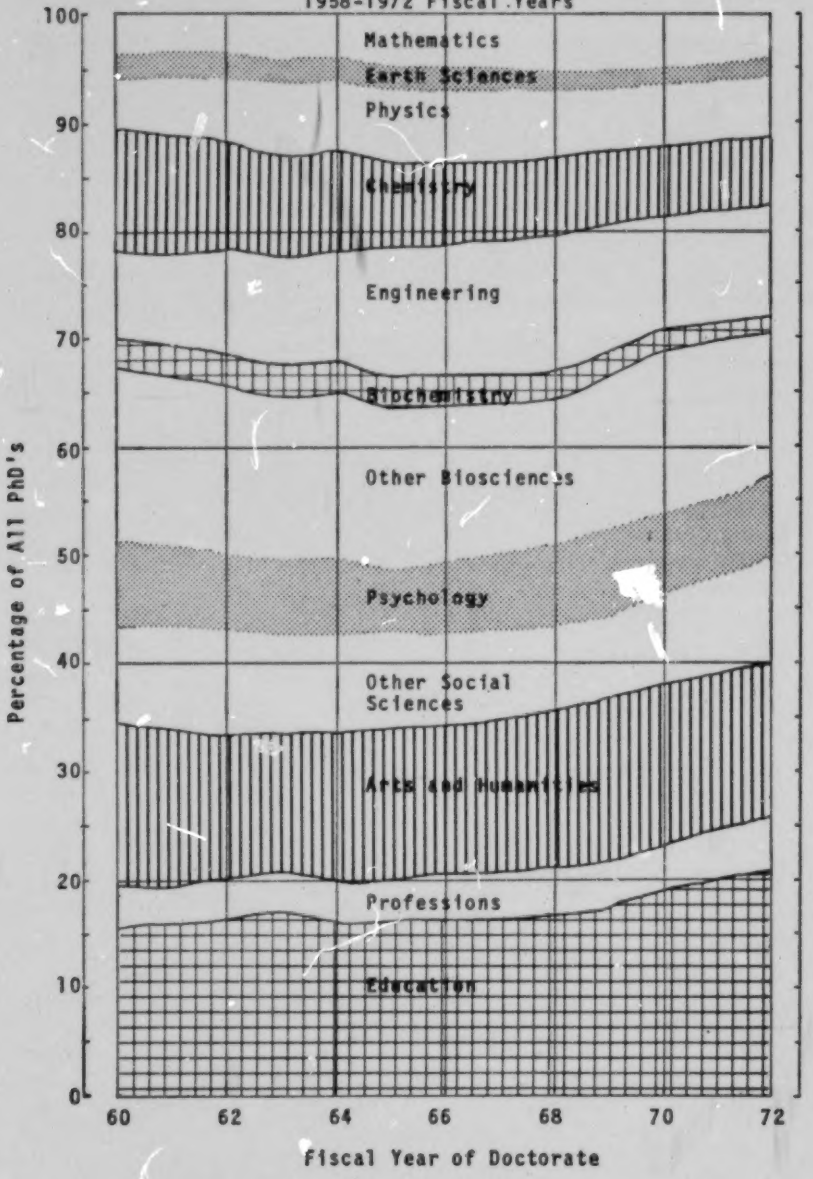
Rather than answer that question, I will ask, instead, other questions which I believe are not irrelevant. For what are we preparing new Ph.D.'s? For academic appointments in centers of excellence? That is what many students, if not most of them, seem to think. That has been the ideal that has been held up to them by the professoriate. Is it realistic? Are they being prepared for the kinds of employment that are actually available, for the kinds of jobs that increasingly will become available in the future? Are we turning them out in the various doctorate fields in numbers commensurate with the demands of these fields?

The numbers are perhaps the easiest figure to get at, and the next figure (p. 17) shows the relative numbers and various doctorate fields over the period from 1958 to 1972. The order in which the fields appear in this chart is determined primarily by the code number order in our Survey of Earned Doctorates, with a couple of minor adjustments to help bring out certain trends. The relative width of each band in this figure reflects the percentage of Ph.D.'s and Ed.D.'s in that field for each fiscal year of doctorate. The absolute numbers, you will recall, have been increasing at a great rate over most of this period. What this figure shows is the relative emphasis. And the emphasis has been increasing in mathematics; it first increased and then decreased in physics; it has rather steadily decreased in chemistry; increased enormously in engineering; and then leveled off. Biochemistry had a period of increase, but has been tapering in recent years. The other biosciences have been changing only slowly. Psychology hit a period of doldrums, and lately has been gaining relatively, as have the other social sciences. The arts and humanities fields, and the professions other than education have held relatively constant.

The big increase, rather steadily over the whole period but accelerating recently, has come in education. We combine Ed.D.'s and

FIGURE 7

Proportions of Total PhD Production in the Various Fields for 1958-1972 Fiscal Years



Ph.D.'s in these figures. In the past couple of years, what overall increase in absolute numbers there has been has come largely from education. The physical sciences have lost of late a bit even in absolute numbers.

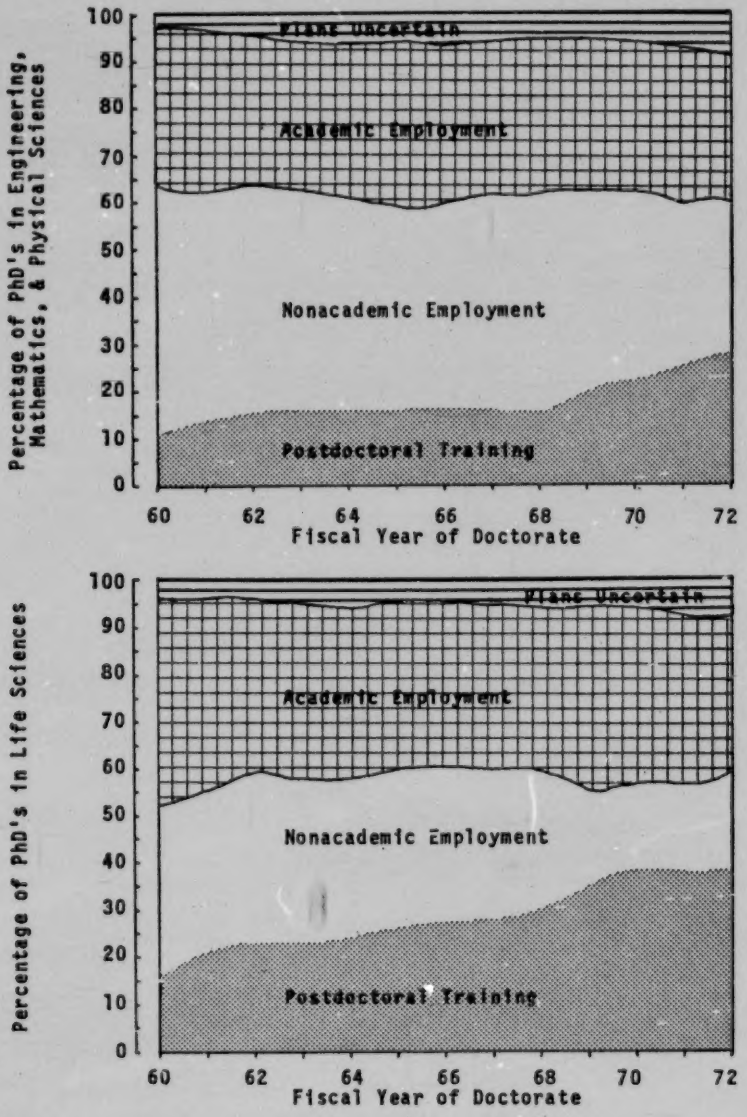
Looking at these figures, we can ask whether the relative shifts reflect at all accurately the changing demands. We can look farther, of course, and ask whether the present demand is any good indicator of demand over the whole working life of these new Ph.D.'s. I rather suspect that the answer to the latter question is no. I also suspect that the numbers of young people turning to any discipline for doctorate level education are a reflection primarily of considerations other than economic demand, as that is ordinarily understood. In other words, I doubt that the dollars-and-cents market place is the primary determiner of output, in either relative or absolute numbers. In physics, for example, the numbers of undergraduates and entering graduate students was falling behind even before 1968, when any new Ph.D. in physics had his choice of several jobs, mostly in Class A institutions. In the field of education, with its long time between graduate education and the doctorate, I doubt whether ups and downs of the market place are reflected meaningfully in the doctorate figures. In fact, to a certain extent, it could be the reverse. With competition sharpening, it may behoove educators to hurry up and finish the degree that they have been working on these many years in order to get that better job that they see opening up.

In all fields, up to a point, growth feeds on itself; the more students enter, the more jobs for professors to educate them, until the bubble bursts. The general phenomenon of "bull market" is not unfamiliar to people who have studied any inflation process. I do not suggest that this brief list of factors influencing Ph.D. output is all inclusive, but rather that the phenomenon is much too complex to be encompassed in any simple supply and demand formulation, where demand is measured in dollars.

So much for the numbers of new graduates. What becomes of them after they get the sheepskin? We have data on that question for the period from 1960 through 1972, and these data are shown in the next figure (p. 19). The first graph will be called "E.M.P." and deals with physical sciences; the life sciences are shown below. The portion next to the top represents 'plans uncertain,' then academic employment; then below it non-academic employment; then post-doctoral training. The same progression holds for all the graphs. These charts are based on the intentions of graduates at the time that they turn in their Survey of Earned Doctorate forms. Various follow-ups have shown that these plans are quite realistic; in fact they are good predictors for up to five years after the Ph.D., as well as immedi-

FIGURE 8

Postdoctoral Plans of PhD's in the Natural Sciences, 1960-1972



ately afterward. Each graph shows the relative proportions of the graduates in a given field who plan on entering post-doctoral training, academic employment, non-academic employment, and those who have no definite plans, usually a small proportion but tending to increase in recent years.

These graphs, I realize, reflect only the new doctors' intentions at the time. We do find that people who have academic employment, for instance, tend to stay in it, while those in non-academic employment tend to stay in the non-academic sector. Naturally, there are people who are postdocs and who take up some sort of employment, but most of them are replaced by larger numbers of others that are graduating.

Question from the Floor:

Do you have any information on what they do after postdoctoral training?

They usually go into academic jobs after the postdoc.

The data that I do have available goes back to the 1930's and they indicate that on the average the length of postdoctoral training has not changed very much. Eighteen months more or less has been standard; this is the average figure and it has been lengthened perhaps a little bit recently.

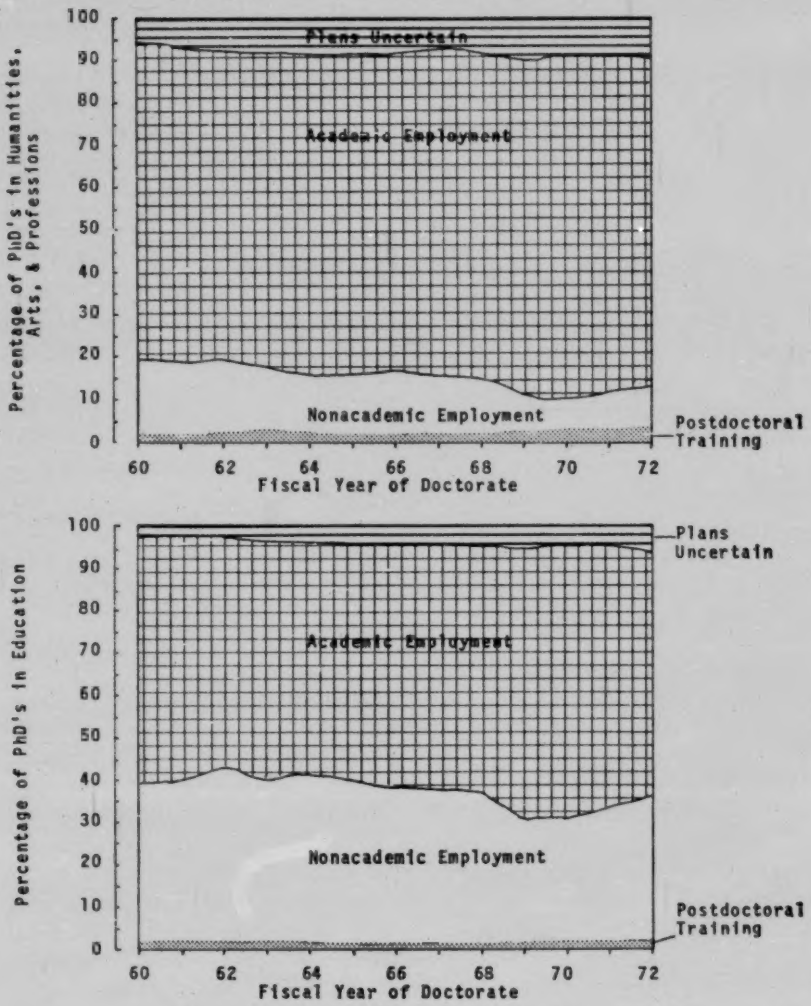
In the physical sciences, postdoctoral training was more or less on a plateau until 1968. Since then it has been rising steadily. Examination of where these people are taking their postdoctoral training indicates that an increasing proportion are staying at their doctoral institutions. In other words, it looks like a holding pattern for people who cannot readily find the kind of jobs they would like. In the biosciences, the increase has been more steady over a longer period of time, and the total is enormous. In some fields, for instance biochemistry, the figure is over fifty percent. Where will all these postdoctorals eventually be employed? The academic market is gradually shrinking, and the non-academic market has shrunk drastically since 1967.

I know that you are asking the same question, but I do not have a very good answer, and the Office of Management and Budget does not like the answers that I do have. Perhaps the Ph.D.'s don't either. But I doubt that we'll make much headway in solving the practical problems of energy, pollution, nutrition, and waste disposal without a lot of help from the kind of people whose statistics we are looking at here.

The next figure (p. 21) concerns the Humanities, Arts, Professions, and Education. The contrast with the natural sciences is enormous, though hardly unexpected. As before, a small but increasing percentage have no definite plans. But the vast bulk of these peo-

FIGURE 9

Postdoctoral Plans of PhD's in Humanities, Arts, Professions, & Education 1960-1972



ple are employed in academe. The proportion in non-academic jobs was cut sharply in the late 1960's, but has gained a bit in recent years. In both these groups, the number of postdoctorals is very small, but increasing.

There is a curious paradox here. Postdoctoral training is intended primarily to prepare people for academic employment. Yet in the fields

which are overwhelmingly academic in employment, postdoctoral training is the smallest. I am not suggesting that it should be higher, but I am suggesting that there is a kind of contradiction here that probably means that the plans and expectations of many people will continue to be wrenched out of shape in the years ahead.

Question from the Floor:

Do you have any information as to whether employment is compatible with or related to the studies that the people have followed?

I don't have a lot of information on that right now. I hope that we will have before the end of the year. I am sure that some of you have been solicited in our survey of what we call the Comprehensive File of Ph.D.'s in the sciences and engineering. We sampled rather heavily in these fields. We are trying to make a completely comprehensive file of all the Ph.D.'s in these fields from U.S. and foreign universities. We are now in the third follow-up wave of that survey and I hope it will give us some information on this question.

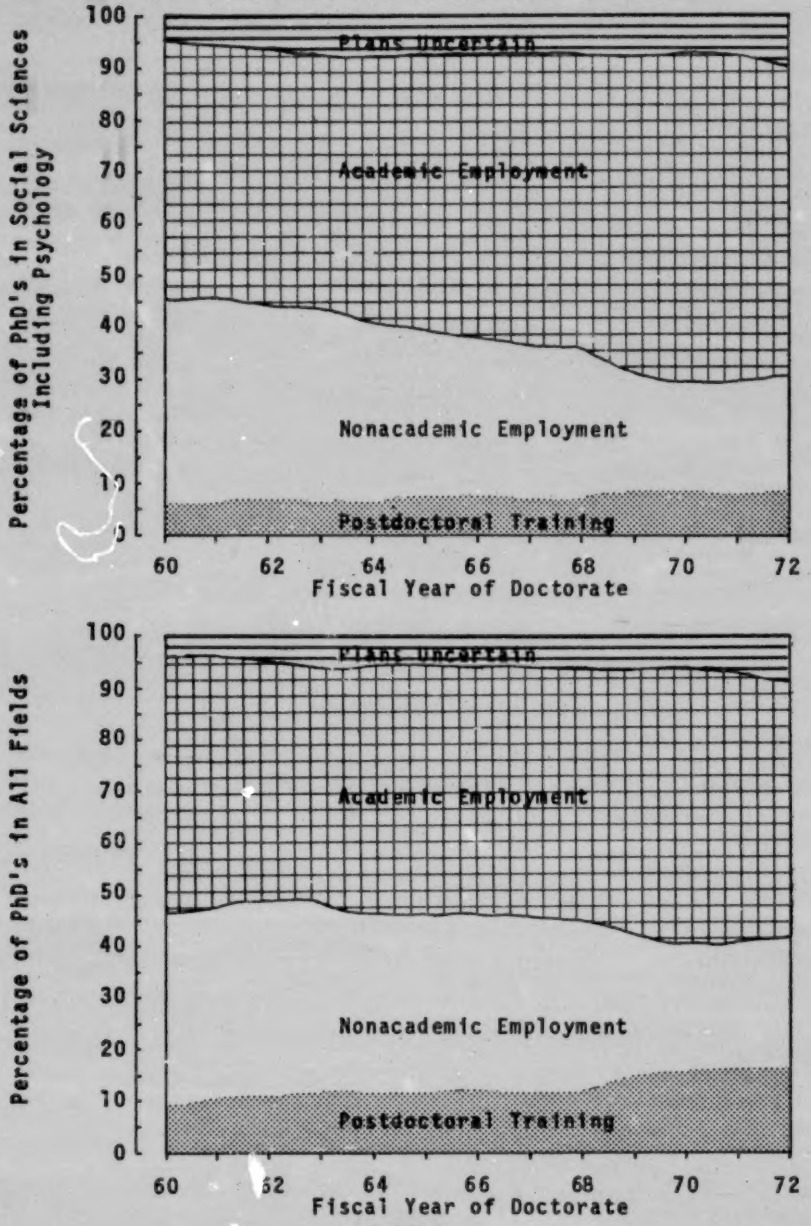
Finally in Figure ten (p. 23) we have the Social Sciences and a summary chart that combines all fields into one. In the Social Sciences, postdoctoral training is nominal, but gradually increasing, and academic employment has been increasing relative to non-academic until very recently. The picture is not greatly different in this summary chart for all fields of Ph.D. combined, although the effect of the natural sciences, with huge postdoctoral training components, is apparent.

These are the data that I have to bring to you today. My inclination, were I to look into a crystal ball, would be to project the trends I have just shown you into the immediate future, simply following an inertia model. But this brings us closer and closer, it seems to me, to a crisis in the natural sciences, where already, if my hearing aid is adjusted properly, the wheel is squeaking the loudest. Are we preparing people in our graduate schools, and in our postdoctoral programs, for the real world that they must face in the years ahead? Is their training optimal, either technically or attitudinally? Have we been leading them to expect that which many of them will never actually experience?

I used to take issue with Allan Cartter with respect to his gloomy predictions of the market place. Actually, the figures I have presented tend to bear him out. There are very definite limits, and we are increasingly crowding them, to academic placement of our new Ph.D.'s, particularly if they are not prepared to teach in four-year colleges and junior colleges, to say nothing of high schools. Even if they are ready and willing to work in places other than the AAU-AGS universities, that market too is finite, and will reach saturation soon,

FIGURE 10

Postdoctoral Plans of PhD's in the Social Sciences and in All Fields Combined 1960-1972



as Cartter has pointed out. The only other place is that broad miscellaneous category "Non-academic Employment," which few Ph.D.'s other than in engineering, chemistry or psychology are prepared to consider. I confess to some biases of my own. My professional career has been almost entirely non-academic and I do not think that it has been all bad. I do not even think it is *déclassé*, although I have found, in trying to recruit some young psychologists, that it seems to be quite outside their life-space. If you do not talk about clinics, rats, brass instruments, nonsense syllables, or classroom teaching, they cannot seem to understand how it can be respectable. Perhaps it isn't. I will leave that to you to judge.

My second confession I have already alluded to. I think that we need all the brains, highly trained brains, that we can get to solve the urgent problems of our modern society. I do not think that training to the Ph.D. level is wasted on people whom we ask to tackle nutrition research, which has been sadly neglected, recycling of urban waste, improvement of agricultural output, transportation, improvement in the educational process, or the huge intertwined mess of social problems associated with urban life today. My question is, however, whether the education we are providing in our graduate schools is optimal for the people who will be working on these problems. I do not question the need for the amount of education they are getting. I do question its orientation, and the attitude building that goes on in the academic life. If it is regarded as faintly or downright disrespectable to get some dirt under your fingernails working on the kinds of problems I have enumerated, then some drastic shifts in attitude are necessary. Finally I hope, although perhaps forlornly, that the professoriate might be guided to make this change in attitude so that they in turn can induce such a change in their students.

And now the floor is open for aggression.

SUMMARY OF DISCUSSION

Dean George A. Russell (Illinois) asked for a prediction of the number of Ph.D.'s that would be produced in 1980. Dr. Harmon refused to base a prediction on his inertia model, feeling that it was becoming obsolete, but expressed the opinion that the rate of annual increase would probably stabilize around 5% and that the proportions of Ph.D.'s produced in various fields would probably shift with education continuing to boom and enrollment in natural sciences leveling off.

Dr. Charles Kidd commented that he thought that Dr. Harmon's figures for projected Ph.D. production were grossly high and that in response to the constricted labor market there was already a leveling-off of enrollment of first-year graduate students. Considering the number of those who would take terminal Master's degrees, he concluded that the increase in Ph.D. output over the next two years would be very moderate.

Dean Arliss Roaden (Ohio State) posed the question of whether many institutions employ their own graduates for a year or two until the graduates can find postdoctoral appointments elsewhere. Dr. Harmon replied that a study two years ago had shown an increase in the proportion of graduate students employed at the institutions where they had received their degrees.

Dean Milton E. Lipetz (Colorado) asked if there are any differential data of employment in academic positions of postdocs. Dr. Harmon reported on a study done for the National Institute of Medical Sciences on postdocs in the biomedical sciences, thinking that this example could be generalized to answer the question. It was found that that greatest number of research positions in the better academic institutions were held by those who had had postdoctoral training. The tendency for those who did not take up postdoctoral positions was that they chose to teach, many in four-year colleges, rather than to follow careers in research.

In response to an inquiry from Dean David Deener (Tulane), Dr. Harmon said that he did not have figures on whether a larger proportion of graduates of AAU universities or of newer universities go into postdoctoral training.

Dean May Brodbeck (Minnesota) brought up the question of how institutions can responsibly direct their graduate faculty and students toward crying social needs without showing them jobs and economic security while solving these needs. Dr. Harmon replied that this is a problem. The priority and economic demand for talent to tackle social problems, he asserted, is largely subject to the political process.

Dean Donald Stokes (Michigan) seriously questioned what individual institutions could do to reorient the course of graduate education and suggested that organizations at the national level would be more effective in defining new areas of study, suggesting interdisciplinary programs, and linking existing disciplines to unmet needs. Dean Stokes suggested that the National Academy of Arts and Sciences and the National Research Council might perform this type of function.

Dean Michael J. Pelczar (Maryland) later asked if the AGS should not be able to take action on the question of reorientation of attitudes toward non-academic employment. Dean Stokes agreed that the AAU did have a role to play, along with the National Board of Graduate Education and the institutions to which reference had already been made. The result of cooperation among all of these bodies might aid in defining fields of study to better fit the employment market.

Dean Robert Bock (Wisconsin) noted that Ph.D. output is less influenced by the manpower needs of the economy or by federal dollars than by "artificial pressure" generated where promotions, higher salaries, and prestige are directly correlated to the degree an individual holds. He suggested that many degrees have nothing to do with the profession of the students who earn them to stay competitive amid the degree spiral. Dean Bock pointed out that rather than federal support in a given field, it is often the publicity received by a discipline that attracts students. He cited the example of a rise in enrollment at his institution in the field of environmental resource management in spite of little dollar support to help students defray the cost of their education. Further alluding to the problem of waning support for students in the traditional Ph.D. fields, Dean Bock concluded that faculty and administrators may have to learn to live with the idea that full support for graduate students is a thing of the past.

Dean Robert Baker (Northwestern) drew a comparison between discussions of overproduction of Ph.D.'s to the discussion of overproduction of B.A.'s a few years ago. While he acknowledged the incongruity of training a person to the Ph.D. without leading him to expect to be able to find a job with it, he felt that this was preferable to reducing Ph.D. production. With regard to the prospect of the most prestigious schools' reducing Ph.D. output, Dr. Harmon pointed out that if AAU institutions began to accept fewer Ph.D. candidates, the newer universities would simply take over the rest of the job in a quantitative sense.

Dean George Russell (Illinois) stated that a study of Ph.D. production at the University of Illinois had shown a rise in the number of degrees granted, although some departments had decreased the number of candidates enrolled by as much as 30%. He suggested that this was due to the consistently higher quality of graduate student that had resulted from cutting back enrollment.

Dean S. D. Shirley Spragg (Rochester) brought up a report of the GRE Board that projected: a) a one- to two-percent rise in doctoral production in 1975 over the 1972 figure, and b) that the proportion of Ph.D.'s produced by the top twenty universities by NSF standards would decrease while the figure for other institutions would be up. Considering that the other institutions rely on teaching assistantships and other kinds of duty awards to support students, Dean Spragg asked if the rise in the proportion of Ph.D.'s granted from the other institutions would mean a dilution of quality. Dr. Harmon replied that using the volume of publications and scientific literature produced at the so-called other institutions, and the citations to those works as an indicator of their quality, the output from the other institutions seemed quite respectable. He went on to say that if by dilution of quality one meant a decrease in the number of Ph.D.'s prepared to teach at Yale, Harvard, or Berkeley, then perhaps this would occur if the most prestigious institutions cut back enrollment. In terms of ability to solve social problems, Dr. Harmon suggested, there would be no dilution of quality resulting from more Ph.D.'s being educated at other institutions.

Speaking to the general question of how institutional quality ratings are established, Dr. Harmon explained the methods used in one of his reports made to the National Institute of General Medical Sciences which, he thought, would be published in the next year or so by the Government Printing Office. He explained that in that particular study the object was to hold constant as far as possible by statistical means the ability and environmental factors that would be related to postdoctoral potential. Indices were developed to characterize the quality of the learning environment at various institutions during the time that the students were there. This index was combined with the Roos-Andersen rating and with the age of Ph.D. to arrive through a multiple regression equation at a prediction of individual citations and publications. It was found that the Roos-Andersen ratings dropped out completely. The institutional index explained all of the variations in the Cartter and Roos-Andersen ratings and more besides. The age of Ph.D. stayed in the equation and would be a more powerful factor as the younger Ph.D.'s published more.

Dean James Lambooy (Maryland) commented that the prevailing attitude when speaking in terms of the quality of graduate institutions is to judge them on the merits of departmental faculty. He suggested that when considering references to published works and research as a tool in as-

sessing institutional quality, it might be wise to consider where the author had taken his degree. Dr. Harmon explained that the approach of the quality index to which he had referred was to find out through citations, etc., which institutions *produce*, not hire, people who publish. Regardless of where those people might go after taking their degrees, their publications would still reflect on the quality of the institution where they had done graduate work. Dr. Harmon went on to say that in the course of the next year a study would be made by the National Research Council to determine the number of publications and citations in scientific literature for every Ph.D. recipient (in the science fields) of U.S. institutions for the past fifty years. Such an accounting would reveal shifts in the quality index over the years according to where most of the publishing Ph.D.'s were coming from.

Dean Lyle Jones (North Carolina) asked if any studies were currently being made of the estimated distribution of doctorates in various academic fields over the next five or six years. He suggested that graduate enrollment, particularly first-year enrollment, includes many students who do not intend to pursue their studies to the doctoral level. Taking this into consideration by using CGS data which breaks enrollment into distinct Master's and Doctoral categories, such data combined with Dr. Harmon's field distribution data might produce a reasonable estimate of distribution of Ph.D.'s in 1977-78. Dr. Harmon commented that he knew of no data to process through such a formula.

Dean Bock (Wisconsin) emphasized the fact that the most rapid growth in Ph.D. production occurred in those fields where there was least federal funding. He commented that this indicates great elasticity in the numbers of Ph.D.'s in fields which would not be greatly affected by a reduction of federal monies.

Dean Irwin Sizer (MIT) mentioned that National Institutes of Health funding of postdoctoral programs would be increasing. Dean Bock pointed out that although new NIH programs are going to be initiated, they will do substantially less than replace programs that have gone on up to now. Both the dollar volume and the numbers of postdocs will be less than the average for the preceding five years.

Dean E. R. Kennedy (Catholic University) asked Dr. Harmon for his view concerning the impact of federal funding of fellowships and training grants on the numbers of graduate students in the various disciplines during the sixties. Dr. Harmon replied that federal monies allocated to a particular field of study tend to free money for the institution to shift to the support of a field lacking federal subsidy. Therefore the impact of federal funding on the growth of a particular field would be minimal. Dean George K. Fraenkel (Columbia) added that in any institution the concentration of graduate students holding federal fellowships is contingent upon the number of faculty in the disciplines for which federal money, particularly NSF's, has been made available. This factor, then, limits the rate at which a university can absorb fellowship-holders and thus the amount of money that it is possible to reallocate to other unsubsidized disciplines.

Dean W. F. Hitschfeld (McGill) raised the fundamental question of whether graduate schools should change in response to social trends or whether, as Chancellor Bowen (Claremont Colleges) suggested at the AGS conference last year, those who have acquired graduate degrees at leading universities ought not to use their education creatively by altering

society. Dean Hitschfeld suggested that the AGS apply itself as a body to this problem by shaping graduate curricula and thesis topics with the needs of the labor market in view. Individual professors might influence students' attitudes toward non-academic employment, increase the attractiveness of their Ph.D.'s to non-academic employers, and in this way effectively bring the academic and non-academic spheres closer together.

Dean Arliss Roaden (Ohio State) added that any discussion of manpower production in relation to graduate education must raise the question of the function of graduate education. Should selected fields of knowledge be cultivated and applied to certain areas of production, or should acquisition of knowledge and the application of it proceed on the premise that education is self-serving, and should bear no necessary relation to production?

Dean S. D. Shirley Spragg (Rochester) pointed out that many of the comments that he had heard indicated some degree of consent to the idea that Ph.D. education should be shaped to accommodate the coming needs of society. Yet this very proposition, embodied in the Newman Report[1] had raised the hackles of many academicians.

[1] Report on Higher Education: The Federal Role—Graduate Education, Frank Newman, Chairman (Washington, D.C.: U.S. Government Printing Office, 1973).

PANEL DISCUSSION ON GRADUATE STUDENT SUPPORT

DR. ALLAN M. CARTTER, DR. DAVID W. BRENEMAN,
DR. GEORGE KALUDIS
WITH INTRODUCTION BY DEAN D. C. SPRIESTERSBACH

Dean Spriestersbach:

In recent months there have been many assertions, predictions, and castigations, much political maneuvering and influence-peddling concerning the education enterprises of this country. As I was shaving this morning I turned on the T.V. and watched the new president of the National Education Association, who appeared on the Today Show, register strong disapproval of the policies of the national administration and pledge NEA to engage in outright political action to bring about changes in our national priorities.

The educational scene then has been characterized by much turmoil and shouting and much use of emotional proof. More recently we have moved to a period of analysis and stock-taking, and for a time it appeared that the graduate part of the educational enterprise was possibly being dismissed, without much analysis, as being too costly or too self-serving or too irrelevant. Perhaps more importantly it was seen as separable from the undergraduate and professional portions of higher education.

Those of us in graduate education have not responded in panic; if anything we responded somewhat lamely. Our response has been influenced by our conviction that graduate education is an indispensable and inseparable part of the whole educational picture. We have reasoned that sooner or later our critics will find this out and our place in the scheme of things will then be secured. In any event some groups have been looking at graduate education very intensively in the last couple of years and some of us would hope to discern at least the beginnings of a shift of attitude which suggests that national policies on education will take due note of the graduate sector. Our recent concerns have been over our needs to do the staff work required to get defensible and substantive material before these various bodies at the appropriate time. Certainly the work reported by Lindsey Harmon this morning is of the type which will be most helpful in formulating policies for the next decade.

This afternoon we are fortunate to have some very qualified speakers to report on the work of three other groups, which can also have

a profound effect on graduate education. We will hear first from the representative of the group that has taken such an outstanding leadership position as a result of thoughtful reflections on the entire gamut of educational activities today. Its reports have become required reading in some circles and even status symbols, to be permanently displayed in office bookcases. I refer, of course, to the work of the Carnegie Commission which Dr. Allan Cartter is here today to describe to us. Next I would like to call on the representative from the National Board of Education, Dr. David W. Breneman. Our third panelist is Dr. George Kaludis of the National Commission on the Financing of Post-secondary Education.

Remarks of Allan Cartter of the Carnegie Commission on Higher Education

I can speak rather briefly about the Carnegie Commission on Higher Education and its impact on graduate education because it never addressed graduate education as such. Some of you may feel that that was something of an oversight.

The Commission was originally appointed to concentrate on the financing of higher education but it broadened its initial charge and began to look at many aspects of higher education. It has been responsible for publishing a number of sponsored research studies by people outside the Commission. For about forty of these the Commission took no particular responsibility; they were not commissioned documents. Many of these Commission books you probably know: Richard Storr's history of graduate education;[1] Dael Wolfle's book, *The Home of Science*,[2] which concentrated heavily on the graduate level; Bud Cheit's book, *The New Depression in Higher Education*,[3] with considerable emphasis on the financial problems of the university sector; Lewis Mayhew's survey of plans for the 1970's in graduate education;[4] and Stephen Spurr's *Academic Degree Structures*,[5] concentrating on the graduate level. Nevertheless there were no specific studies that really try to assess the health of the total enterprise and none of the major Commission reports devoted more than a few pages here and there to

[1] Richard J. Storr, *The Beginning of the Future: A Historical Approach to Graduate Education in the Arts and Sciences* (New York: McGraw-Hill, 1973).

[2] Dael Lee Wolfle, *The Home of Science: The Role of the University* (New York: McGraw-Hill, 1972).

[3] Earl F. Cheit, *The New Depression in Higher Education: A Study of Financial Conditions at 41 Colleges and Universities* (New York; McGraw-Hill, 1971) and Cheit, *The New Depression in Higher Education: Two Years Later*, 1973.

[4] Lewis B. Mayhew, *Graduate and Professional Education, 1980: A Survey of Institutional Plans* (New York: McGraw-Hill, 1970).

[5] Stephen H. Spurr, *Academic Degree Structures: Innovative Approaches; Principles of Reform* (New York: McGraw-Hill, 1970).

graduate education. The ones I think of among Commission policy statements were *Quality and Equality*, both the original and the revised version;[6] *Graduates and Jobs*,[7] which devoted considerable attention to the job market for people in graduate and professional fields; and the one that I was mainly responsible for last year on who pays and who benefits,[8] which has a chapter on graduate education and a brief appendix on university research.

If you considered all those reports they would not add up to many strong recommendations about graduate education. The Commission did propose a formula for the funding of graduate fellowships from federal sources. It recommended a national program unifying the fellowship programs of the National Science Foundation, the National Institutes of Health, and the Office of Education. It recommended a single fellowship program for post-Master's degree level graduate studies—two- or three-year awards that would be equal to fifty percent of the average number of Ph.D.'s granted over the preceding three to five years. That was a program which, in terms of today's numbers, would have meant fifteen or sixteen thousand new fellowship appointments each year. That had been recommended four years ago in one of the earlier Commission monographs, but clearly it did not influence federal policy.

As the Commission came to the close of its debates last year there was no clear consensus on recommendations for graduate education. The final report, *Priorities for Action*,[9] devotes little attention to graduate education. This is not to say that the Commission was not concerned with it. At least seven of the nineteen members of the Commission were either current or recently-retired presidents of large universities. The Commission made strong recommendations on research funding: that the federal government should try to stabilize funding for research and that support of basic research performed on university campuses should grow at the same rate as the GNP grows. This recommendation was originally made in 1969 and it took 1967 as its base. If you look at 1973 we are already twenty-five percent below what that recommendation would have produced in research funding.

In several of the last Commission reports there are strong statements to the effect that it was important that the federal government again

[6] Carnegie Commission on the Future of Higher Education, *Quality and Equality: New Levels of Federal Responsibility for Higher Education* (New York: McGraw-Hill, 1968). *Revised Recommendations* published in 1970 as a supplement to 1968 report.

[7] Carnegie Commission, *College Graduates and Jobs: Adjusting to a New Labor Market Situation* (New York: McGraw-Hill, 1973).

[8] Carnegie Commission, *Higher Education: Who Pays, Who Benefits, Who Should Pay?* (New York: McGraw-Hill, 1973).

[9] Carnegie Commission, *Priorities for Action: Final Report of the Carnegie Commission on Higher Education* (New York: McGraw-Hill, 1973).

turn its attention to the support of basic research in universities, as much to maintain the strength and vigor of the universities as for the long-run national interest. The Commission also made strong statements on the issue of the Doctor of Arts degree. It urged that more attention ought to be given to the preparation for teaching careers, and encouraged the development of the Doctor of Arts.

The most recent Commission volume came out in July and was a monograph that attempted to look at the financing of higher education and to propose some recommendations for the next decade. Essentially, it said that over the next ten years we believe there should be a modest redistribution in the cost burden of higher education, both a redistribution among students from families of varying degrees of affluence to those in need, and also a redistribution among federal, state, and local funding, in terms of the share of public revenue devoted to higher education. This in effect meant a recommendation that encouraged the gradual increase of the tuition level in public institutions from the 1972 level, equal to about seventeen percent of the total cost, up to a level of approximately one third of cost by 1983. In terms of the relative share of costs which tuition pays in the funding of higher education, the report recommends a doubling of the present rate.

I want to distinguish that from the recent document from the Committee on Economic Development which recommended that the tuition levels should rise in a five-year period sufficiently to cover half of the cost. That is a much more dramatic kind of increase, and many people confuse the Carnegie Commission with that, although I think the Commission's recommendation was much more modest. The Carnegie Commission argued that a much larger share of costs over the next ten years should be shifted to the federal government. This does not mean a decrease in state funding; it merely means that state funding would increase at a somewhat less rapid rate, and also that most of the new federal funds supporting education would be in the form of direct aid to students (possibly with some cost of education allowances, particularly at the graduate level). Essentially the Commission has recommended student aid rather than institutional aid. The Commission proposed that the present federal effort, which represents something like about three billion dollars a year in student assistance (veterans' assistance included), should move up to a figure somewhere around eight billion dollars a year in ten years.

The argument for the change in tuition levels in public institutions was partly to help fund the necessary expense of making a reality of universal access to higher education, and partly to try to provide again a better competitive base between private and public institutions. The Commission urged a return to the relationship between public and

private tuition charges of the late 1950's. If one looked at average tuitions in the public sector and average tuitions in the private sector than, those in the private sector were about two-and-a-half to three times higher. Over the last fifteen years, however, this ratio has risen from three-to-one to five-to-one, and the Commission proposed to re-establish that old ratio by raising tuitions in public institutions to about one third the actual cost of education.

In *Who Pays, Who Benefits*,[10] there is a brief chapter on graduate education. It says that the tuition problem is not as great at the graduate level because to a very significant extent graduate students, particularly in the sciences, are compensated by outside support: TA funds, RA funds, university scholarship funds, and federal funds. Therefore the situation is quite unlike that at the undergraduate level; the question of tuition is a kind of nominal adjustment. If a public institution suddenly raised tuition a thousand dollars for a graduate student, presumably RA and TA allotments would be adjusted to compensate for the change. It was also felt that the out-of-state fees in most public institutions were reasonably competitive at the doctoral level. There is a much smaller differential between public and private institutions at the graduate level than there is at the undergraduate level.

One thing of interest in that brief chapter is a table estimating the total amount of student assistance for various types of graduate students for 1972. It pieces together information from different sources. Too often presidents or graduate deans or even students tend to forget the multitude of sources from which support comes for graduate students today. Let me quickly run down four or five figures here that may be of interest to you. The estimates we made for 1972 for arts and sciences only (omitting medicine, dentistry, law, and other such professions) were these: that there were about forty-five thousand students being supported on research assistantships with about a hundred and thirty-five million dollars' worth of funding; about sixty-five thousand students holding teaching assistantships involving about a hundred and sixty million dollars of funding; about forty thousand students holding fellowships funded by their own institutions with a dollar estimate of about eighty million dollars; about a hundred and sixty-five thousand graduate students getting benefits from the Office of Education, the total amount of money a relatively small fifty-seven million (If one had a loan under a guaranteed loan program and had a partial subsidy of the interest, then that student was counted in that figure of a hundred and sixty-five thousand; the number of people supported there is exaggerated in terms of significant support); another forty thousand students getting a hundred and two million dollars in

[10] Carnegie Commission, *Higher Education: Who Pays, Who Benefits, Who Should Pay?*, pp. 93-7.

other federal assistance; and finally, one we tend to forget about today, an estimated one hundred and three thousand on veterans' benefits bringing in a hundred and forty-seven million dollars. Actually there are about a hundred and seventy-five thousand post-baccalaureate veterans in universities today, and of that number about sixty percent are estimated to be in the arts and sciences.

When you add all that up, and before you make estimates for double counting, you find that there are something like four hundred and fifty-eight thousand student-support items. Our guess was that somewhere between a hundred and fifty and two hundred thousand are double-counts, people that have a loan and therefore are getting partial interest subsidy and also hold a teaching assistantship or other type of fellowship. This left somewhere in the neighborhood of a quarter of a million students in the arts and sciences receiving financial support amounting to almost seven hundred million dollars. That is substantially more than the total amount of tuition paid by all graduate students in the country. We estimated that two hundred and fifty thousand students were being supported. The Council of Graduate Schools reported only two hundred and eighty-five thousand full-time graduate students in arts and sciences and another three hundred thousand part-time. In debates today over the sharp decline in federally funded scholarships we tend to forget that they represent only about twenty percent of the total number of students receiving financial aid. For the time being, veterans' benefits have filled the void as federal fellowships have been cut. In two or three years, however, veterans' benefits will begin to phase out, and the financial problems for graduate students may suddenly become more dramatically visible.

The Commission has also tried to keep a careful eye on enrollment trends, and you may have noticed revised estimates on enrollments in a recent ACE newsletter. There is a technical appendix in the final report that is going to be out in another week or two; the tables on enrollment trends and projections may be of some interest to you.

The Commission's most recent projections, made about four months ago, are now about twelve percent lower for 1980 than the Commission had projected in 1971. If you look towards 1990 the projected figure is about eighteen percent below where we thought it would be in 1970. As nearly as one can tell, it now seems likely that total college and university enrollments will expand by about twelve percent in the remainder of this decade and then probably decline by about ten percent during the 1980's.

There are some confusing bits of data that have emerged in the last year or so; in projecting enrollments one is walking on quicksand these days. I frankly do not know what to make of the recent census report which shows that the percentage of eighteen- and nineteen-year-old

males in college dropped from forty-four percent in 1969 to a little over thirty-seven percent in 1972. It looks as though the number of young men going to college has dropped dramatically; obviously a good part of that is the end of the draft.

In the case of women eighteen and nineteen years of age, the percentage in colleges now—about thirty-four percent—is ten percent higher than it was a decade ago, but the rate has not changed since 1969. Looking at males, age twenty and twenty-one, the percentage in college has dropped from almost forty-five percent in 1969 to the 1965 level of thirty-six percent. Attendance rates for women are still inching up slightly in the twenty- to twenty-one-year-old group. If you look at the older groups, twenty-two to twenty-four, men and women combined, there is a slight decline from 1969 to 1972. In the twenty-five and older group there is a very slight increase, but that represents such a small part of total enrollment that it is not significant. I find this data not only discouraging but also a little confusing.

It is hard to estimate from the last two or three years what is likely to happen to college enrollments over the next five to ten years. The Vietnam War and the draft change all make it very difficult to interpret this data. Even if you look at the high school graduation rate, which is ordinarily tied very closely to college enrollments, one is puzzled. In 1969 it was about seventy-six percent of the age group who were graduating from high school. When I was making projections three or four years ago I assumed that the rate would go on as it had done historically, rising about one percent per year. In fact, the percentages were seventy-eight point five in 1969, seventy-six point eight in 1972—a modest decline in the high school graduation rate. There is great variety in the rate by region. For example, in North Dakota over ninety-four percent of the eighteen-year-olds graduate from high school, as compared with about sixty-four percent in Florida and South Carolina, and fifty-three percent in the District of Columbia. There is much variety also by type of institution and degree program. As you probably know, in 1972 there was a five-and-a-half percent increase in junior college enrollment, a less-than-one percent increase for four-year institutions, and a decline of one-and-a-half percent for first-time enrollment of a degree credit nature. These facts I find confusing and puzzling.

There is one other study to which I might briefly refer. Using National Research Council data, John R. Niland has done an article in *Industrial Relations Review* which shows where Ph.D.'s in various universities were going for their first teaching employment.[11] He was pointing out what he called the "filtering-down process" by which

[11] John R. Niland, "Allocation of Ph.D. Manpower in the Academic Labor Market," *Industrial Relations Review*, Vol. II, No. 2 (May 1972), pp. 141-56.

more and more of the Ph.D.'s from prestigious schools are taking their first teaching jobs in institutions of lower prestige.

Another interesting article, not published yet, I believe will appear in the *Journal of Human Resources*.[12] It shows that in 1967 twenty-two percent of new Ph.D.'s were taking their first appointments at institutions of equal or higher prestige compared to the institutions where their doctorates had been taken. (In this case institutions are all ACE quality rated.) Nineteen-sixty-seven, of course, was the last of the great sellers' market years. By 1971 that had dropped from the original twenty-two percent down to only eight-and-a-half percent, indicating a much greater flow to new institutions of somewhat lower rank. This is not so surprising a conclusion. I am now doing some analyses to break these figures down by sex because my guess is that the men are filtering down and the women are beginning to filter up.

For new Ph.D.'s taking research appointments (not postdoctoral studies) from 1967 to 1971, the percentage going to equal or better quality institutions dropped from sixty-two percent to twenty-three. In the case of postdoctoral appointments the percentage stayed almost exactly constant, at about seventy percent. This illustrates a kind of holding pattern, in which new Ph.D.'s in science fields stay on at their own institutions for a postdoctoral appointment.

During the current year, I am taking a more serious look at the academic labor market, and hope by this time next year to have finished a book for the Carnegie Commission on that subject.

My final comment is to re-emphasize what I have been saying for several years. The major problem in the academic labor market is five to ten years ahead of us. The late seventies and the eighties look discouraging because of the presumed slow-down and finally the contraction of total college enrollment. Since the demand for new college teachers, other than those who are going out by death or by retirement, is essentially a function of the greater change in undergraduate enrollments, it can be a rather discouraging time when expanded demand is likely to be zero.

One sign of health is that we all have a much more cautious view now rather than the kind of rosy optimism we had in the 1960's.

Remarks of David W. Breneman of the National Board on Graduate Education

I want to talk to you briefly today about just one activity of the National Board, a paper dealing with alternative federal policies toward graduate education and research.

[12] The article, also by J. R. Niland, is at present in manuscript form. By the time the AGS *Proceedings* went to press no firm date for publication in the *Journal of Human Resources* had been set.

The background of this paper is an interesting one. As you know there are a number of other groups, two of them represented here today, which have or will have reports forthcoming in the next few months on the financing of post-secondary education, with special emphasis on the federal role. A number of us associated with the Board were concerned that graduate education and research, in which we think there is a major and continuing federal interest, might get short shrift. We decided that as a major group in the field, we ought to accept the responsibility to write a report on federal policy alternatives toward graduate education. Our report ought to be available for publication and distribution in January, 1974.[13]

Very quickly I would like to run down the outline of the report so that you will know the topics to be covered. It will focus on what reasonable options the federal government might take. There will be a brief introduction, in which we talk about the purpose, function and social significance of graduate education and research. The focus here will be on the public interest rather than on the special interest that universities have. A short historical section follows, which traces in rough outline federal involvement in graduate education and provides some data on the trends in various forms of support. The third part discusses some current and impending problems of graduate education. (It is easy to write on and on about that!) The fourth section deals with options concerning student support.

I might say, parenthetically, that in trying to organize research activities in Washington on graduate education I have found a dearth of investigators who have gone into graduate education very deeply. There is no lack of people who can tell you many things about cost and benefits at the undergraduate level, but there has not been research that one can cite in the area of graduate education.

Returning to the report, the fifth section will address research support. I think all of you are firmly committed to the view that one cannot meaningfully separate graduate education and instruction from research. There will be a section on institutional support, and federal options in that area, then a section on the difficulties of discussing cost analysis.

Finally, we will argue the need for a coordinating role in Washington to be played by some agency or other: some focal point where the total impact of the various federal agencies upon graduate education can be analyzed. This coordinating agency might begin with the minimal but important activity of collecting consistent data about trends in graduate education and assessing what the impact of the

[13] National Board on Graduate Education, *Federal Policy Alternatives toward Graduate Education: A Report with Recommendations*, No. 3 (Jaunary 1974). There are several differences between Dr. Breneman's presentation and the final published report, particularly in recommended levels of funding. Chapter 1 summarizes the recommendations.

federal government really is. I have spent now almost a year plowing through the many sources of data that are available in Washington and it is the most frustrating exercise I have ever gone through. It is almost impossible to put together consistent series of very basic data. Different agencies do little bits and pieces of it. The NSF does good work, but it sketches in only part of the picture. I spoke briefly this morning about enrollment and that seems like a reasonable place to start. We ought to know what is happening in graduate enrollment, but even that picture is presently very hard to get.

That, in a nutshell, is the report. I do not know at this point if it will turn out to be merely a list of options or whether the Board will recommend that certain policies make more sense than others. I rather suspect that the latter will obtain.

Next, I wish to outline an emerging consensus of the Board on what wise federal policy toward graduate education and research might be for the 1970's. The community of graduate education has been somewhat uncertain about what it ought to be supporting, what are reasonable requests to make, how one ought to handle assertions about "the Ph.D. glut" and student support. Therefore, it should be a useful exercise to tie together the threads of a reasonable policy package. These ideas do not represent a final Board position, although many of the ideas here have emerged from our discussions. The focus here is only on the federal role.

The first point to be stressed is a strong belief in a continuing federal interest in graduate education and research. The federal government is part of a plurality of funding sources which share the responsibility for supporting graduate education together with states and private resources. We do not think it is particularly worthwhile to consider a radical departure from the plural sources of funding that we have had in the past. Nevertheless, there is a unique federal role, in that two products of the major universities—highly educated research personnel and research results—are really national resources.

What should the goals of federal policy be during this period of adjustment? Lindsey Harmon this morning argued that this is a transition period, so I tried my hand at putting down what seemed to me six reasonable goals for a federal policy to guide this adjustment process. One, whatever happens in the next few years, we ought to preserve and strengthen the high quality of the nation's leading research universities and assure that the nation's students have access to these graduate programs. We would be foolhardy to try to level off or submerge the quality that we presently have. Two, we should encourage the development of new and non-traditional graduate programs that meet the needs of part-time students, older students, and urban residents. Three, we should seek to maintain the supply of

highly educated people in a reasonable relation to the diverse and complex needs of technological society. Four, we should expand access to graduate education, especially among members of ethnic and minority groups, who have been under-represented. Five, we should try to maintain regional balance in the dispersion of graduate education while discouraging the wasteful duplication of programs that do not serve unique needs, but which merely attempt to imitate existing programs with resources that are inadequate. And six, we should assure that universities have opportunities to develop new programs—both the highest quality institutions and universities that are seeking to meet newly emerging needs of non-traditional students. Some of you know that the CGS, in conjunction with the GRE Board, will be publishing a report on alternative approaches to graduate education for non-traditional students. I think that will be an important document to read.

Now let me consider the labor market issue. We begin by endorsing the point of view expressed by Howard Bowen in the rather eloquent talk he gave to this group last year.[14] The Board's forthcoming report begins with a lengthy citation of several sections of Bowen's paper. We argue that federal support for graduate students should be influenced but not determined by long-range prospective supply and demand and that the *immediate* state of the labor market should have little effect on levels of student support. Over-reaction to short-term labor market conditions, whether for expansion or contraction, has been a common federal response that increases rather than decreases cyclical fluctuation in the labor market.

Three, we have looked over a number of manpower forecasting techniques, and have come to the conclusion that they are not well developed at this time. I recommend to you a recent book by Mark Blaug and Bashir Ahamad.[15] It is a history of manpower forecasting in a series of different countries. Blaug and Ahamad conclude that such forecasting is in a terribly underdeveloped state, that the various techniques that countries have tried have uniformly failed and that one should not place much reliance on any given forecast. If the labor market needs constantly to be monitored field by field, that is another thing. There is some feeling on the part of our Board that in some select areas there may even be shortages of Ph.D.'s several years hence if present policies are maintained. In fact, the only area in which we have reasonable confidence is in the projection of diminished academic

[14] Chancellor Howard R. Bowen in "Panel Discussion: How Much Education?" *Journal of Proceedings and Addresses of the 24th Annual Conference of the Association of Graduate Schools in the Association of American Universities*, No. 24 (1972), pp. 7-23. Reprinted as "Manpower Management and Higher Education," *Educational Record*, Vol. 54, No. 1 (Winter 1973).

[15] Bashir Ahamad and Mark Blaug, eds., *The Practice of Manpower Forecasting* (San Francisco: Jossey-Bass, Inc., 1973).

demand for Ph.D.'s. Every time one sees a new enrollment projection it goes down again, and demographic factors dominate this market. The humanities face serious problems, for it stretches our credulity to see a growing *non*-academic demand for people in such disciplines.

However, non-academic demand is a significant part of the picture. Of the Ph.D.'s produced in 1972, about fifty-six percent took positions in universities and colleges, meaning that forty-four percent accepted non-academic placement. Of course, in some fields the percentages are quite small. There is substantial evidence that people are turning away from fields that are predominantly aimed at the academic market and toward fields, largely professional, that respond to other than academic demand. I think that we are not as pessimistic on the issue of the labor market as some of you seem to have been this morning. We think that the labor market does work, not perhaps very efficiently for people in highly educated occupations, but it does work.

Turning now to graduate student support, I would like to sketch out a minimum package that might be argued for at this time. I have talked this over at some length with Dr. Charles Kidd, and it represents our common thoughts, on this subject. It also represents the emerging point of view the Board will probably endorse. First, we simply stress the great plurality of sources of support for graduate students. This is how it has been and how it should continue to be. In the area of federal scholarships the peak year was 1968.

There are three areas in which one could reasonably argue for the continuation of federal fellowship support. The first is a straight competitive "portable" scholarship, modeled closely on NSF predoctoral scholarships, but extended through the National Endowment for the Humanities to all academic disciplines. We do not see any reason to continue to support scientists only. A reasonable request might be an increase of the total in this package to about a thousand new starts a year with the other five hundred going into the humanities. Some may be allocated more extensively in the social sciences. These would be three-year grants, and there would be approximately three thousand people on this type of support at any one time. Labor market considerations would be utterly irrelevant to this sort of program. The point is simply to tone up the system, keep an almost token federal presence in maintaining the highest quality graduate education and make sure that these students have a chance to attend the highest quality institutions. Financial need would not be considered, as these fellowships would be strictly merit-based.

The second broader type of program, details of which are not fully clear yet, would be a package of mission-oriented fellowships, modeled after the NIH training grants. They would be awarded to institutions in order to allow them to create new kinds of graduate programs, or

to expand existing programs in areas that we were talking about this morning: health, environment, energy, housing, urban concerns, education. This program would involve federally funded grants awarded to universities that are willing and able to create new programs that would bring to bear on social problems the various skills that individual disciplines have. That does not, however, solve the problem of creating effective demand. The solution to that problem must come from the federal government; it is a political problem.

This program, involving perhaps fifteen hundred to two thousand new awards each year, would help universities shift the emphasis of present programs. Need, assessed at the institutional level, might be a factor in these student traineeships.

A third area involves a very murky legal issue right now. Nevertheless, our Board is firmly committed to the notion that we should have a program of equal access fellowships targeted very explicitly at minority groups. I think when we see the word "minorities" our minds flash "disadvantaged." There is a mixing-up of the economic/ethnic issue here. We want to be very explicit and say that this program is aimed at ethnic minorities in order to increase the pool of trained people so that our Affirmative Action programs make some sense. Furthermore, we must have people trained through the doctorate in fields that minority students have not tended to go into in the past. Many minority students are in graduate education programs and the concern is to get more of these people into the natural and social sciences. What is not clear at this point is whether such a program would be constitutional.

This program would not be large, perhaps two or three hundred such grants a year. Using the figure of about six thousand dollars per award per year and the minimum numbers I suggested in each of the three programs, you come up with a package of about fifty million dollars a year. In light of the figures which Allan Cartter was reciting, this total program is small potatoes. In fact there are a number of institutions that would not really be helped very much by this program. It seems to me, and I think to a number of our Board members, that something like this would be a reasonable minimum package for which one could argue.

Let me talk briefly about the concept of a Graduate Opportunity Grant Program, modeled on the Basic Opportunity Grants for undergraduates. I believe that a single national technique for determining need for graduate students is impractical, foolhardy, and almost impossible to administer. It seems to me that it goes against the trend of lowered age of student majority. Personally, I think the GOG concept is nonsense; I cannot see any way that I could argue for it as a national program.

On the other hand, I think there is room for need analysis. Even now some of you are experimenting with GAPSFAS (Graduate and Professional School Financial Aid Service) at the institutional level and are applying the need criterion. This experimentation is fully appropriate and ought to be continued.

Moving on rapidly, we note that the teaching and research assistantship positions are the bedrock of graduate student support. They have been maintained at reasonably constant levels over the last four years. From NSF graduate student support surveys of about twenty-seven hundred comparable departments, the number of teaching assistantships has been going up slightly. This area of support then seems to be holding. I think one must simply note this fact and applaud it.

Next, loans. Quite clearly loans have begun to play a much greater part in graduate student support and undoubtedly will have to increase in importance. One section of our report, however, argues that the federal loan programs under their current terms and conditions probably cannot be expected to expand massively in terms of the number of graduate students that are going to be able to draw on them. There are very definite limitations on the number of students and the amount of support for graduate students we can draw from that source. The changes required to convert present programs into long-term, income-contingent plans are going to be a long time coming. Much national debate must take place before we see fundamental revision of these programs. Although loans are important I do not think one can look to them for the salvation of graduate student support.

Finally, the G.I. Bill. I was absolutely flabbergasted when I saw the figures that Allan Cartter mentioned. The growth in this form of support goes a long way to explain how graduate student enrollments are staying as high as they are. One expects graduate enrollments to fall, but every time you turn around, some survey shows they have jumped up another three percent. Part of the explanation is the G.I. Bill. Figures for 1973 show about thirty-seven percent of federal graduate student support comes from this source. In 1972 the estimate was two hundred and forty-five million dollars, which is a large item, but is often overlooked. Furthermore, the impact of other cutbacks has not been felt yet. Within a couple of years I would expect a substantial decline in graduate enrollment. I am enough of an economist to think that if these various forms of support are eliminated, many potential students will quit coming to graduate school. I am convinced that the supply of Ph.D.'s people have been projecting—sixty-eight thousand by 1980—is just not going to happen.

Very quickly, let me mention research support. There seem to be at least two points to be made here. One is that mission-oriented agen-

cies in Washington that supply so much research money simply can not be expected to plan their activities to please newer universities. It makes no sense to argue that each agency, one by one, should continue to provide a constant dollar amount of support to universities. We are exploring alternatives. One would be the revival of an old idea: the notion of another agency as a balance scale. As mission-oriented support declines, there would be a *prima facie* argument for NSF support, for example, to go up to offset some of this loss.

We are looking at a proposal, similar to a Carnegie Commission recommendation, that basic research support be targeted at some fixed percentage of GNP. With regard to institutional support, Howard Bowen wrote that the biggest financial responsibility towards the system of higher education that has been evolving over the past twenty-five years is basically sound. This probably summarizes my point of view and that of most people on our Board. States and private sources assume responsibility for the basic operations of the institutions and the federal government assumes increasing responsibility for the financing of students, research, and the support of selected institutional programs that are in the national interest. As a footnote, we will want to see the continuation of such things as the cost of educational allowances, and NSF and NIH support that comes in as a percentage of the research support in a university.

Finally, we are very concerned by the growing pressure from federal and state agencies on the universities to provide some measure of unit costs. People want numbers, for example, what the cost is to produce a Ph.D. in aeronautical engineering at the University of Michigan. Cost analysis at the graduate level is an enormously complex problem. Ph.D.'s are jointly produced within the university; the relationship of research to graduate education, and of graduate education to undergraduate education make any attempt to break out the costs of graduate programs by themselves a very difficult analytical task. None of the current techniques that have been developed for costing higher education are able to handle this problem.

There is a need to do more than shake our heads. We have to respond positively with concrete suggestions, and that is really a call for more research. Perhaps I will let our next speaker resolve the problem!

Remarks of George Kaludis of the National Commission on the Financing of Post-secondary Education

The National Commission on the Financing of Post-secondary Education will not, I think, say a great deal about graduate education. I could cite chapter and verse on the problems I have had simply to

get people to understand that there is a thing called graduate education and that universities do research.

The first problem we had was the definition and context of the term "post-secondary education." What did it mean? First, the phrase itself has implications beyond the frame of reference you and I have about traditional higher education. We know that there are over twenty-nine hundred institutions in the collegiate sector, as we will call it, enrolling about nine million students. But there are thousands of other institutions operating in the post-secondary field, how many thousands no one is really sure. For the purposes of the Commission we have embraced another seven thousand institutions of the occupational/vocational variety, both public and private, and non-profit institutions. Beyond those seven thousand are others which we could put into the definition. Let me quote for you our operational definition of post-secondary education.

> Post-secondary education consists of formal instruction, research, public service and other learning opportunities offered by educational institutions that primarily serve persons who have completed secondary education or who are beyond the compulsory school attendance age and that are accredited by agencies officially recognized for that purpose by the U.S. Office of Education or are otherwise eligible to participate in federal programs.[16]

Getting to the heart of those few lines I assure you is rather difficult.

As you might have guessed the toughest word to get into that definition was "research"; it took about three months to bring the Commission around to accepting it. We have tried to hedge this a bit in our analysis and work by adopting the Carnegie Commission's institutional typology and augmenting it to include the occupational/vocational sector.

Some of the important members of the Commission obviously are the four congressmen. We began with Senator Pell of Rhode Island, but he resigned and William Hathaway from Maine replaced him. J. Glenn Bell of Maryland is the other Senator. John Brademas from Indiana and John Dellenback from Oregon are the members from the House.

Let me fill in the context of the Commission's report, which is due in December. It is the beginning of discussion on new education amendments to replace those passed in 1972 which will expire in 1975. There is the possibility of a one-year extension of those 1972 amendments, so any new amendments might not come into effect until 1976. The idea is that our report will be on the table in early 1974 for the beginning discussions on the new amendments.

[16] National Commission on the Financing of Post-secondary Education, *Financing Post-secondary Education in the United States* (Washington, D.C.: U.S. Government Printing Office, December, 1973), p. 49.

There is a good chance that the Commission will not cover graduate education in the way that it should. Three or four members of the Commission, I think, would have the interests of graduate education at heart, but in that vast spectrum of post-secondary education, ranging from the least sophisticated business college on the one hand up to the most complex research university on the other, it is going to be difficult to cover each sector in the specific ways which might satisfy the interests lying in that sector. Like any good commission we adopted a set of objectives that sound good, probably because they look like God, Motherhood, and Country: access choice, opportunity, diversity, flexibility, independence, accountability, adequacy of support, excellence. Trying to measure those objectives is of course an interesting exercise.

Our main work is in what we call the analysis of alternative funding. In this work we intend to be very general. The congressmen have told us to mind the title of our Commission, "national" not "federal," and have hinted that we should look to the kind of pluralistic support that David Breneman mentioned in his remarks. One task that I think we will do as a commission is to produce a census of those programs which operate today in the financing of post-secondary education. The total bill comes to thirty billion dollars annually, eight billion of which comes from three hundred five different federal programs. Almost two billion dollars of that goes for research and development in universities. I think the federal government still has a large role to play despite that admonition from our congressional members.

We have set two extremes of possible alternatives, on the one hand full private funding of programs and on the other hand full public funding. We will try to come down between those two extremes with some reasonable alternatives. We will double-check the Carnegie Commission recommendation, examine the Committee on Economic Development's which followed, and look at the two-year free-access model. Furthermore, the Commission should consider the idea of federalization of support for leading research universities.

As a result of the Carnegie and CED reports, both of them making some recommendations—increasing public tuition, redistributing some of that money for greater access for kids from low-income families—, some of our colleagues from the public sector do not want the Commission on Financing of Post-secondary Education to reinforce the message sounded by both earlier reports. We have not made up our minds on the issues of tuition increases and redistribution, but we intend to study the alternatives.

Other alternatives we will study include funding the educational amendments of 1972 at two levels, the first one being the fiscal 1974 budget passed by the House, the other being full funding of these

amendments at the 1975 authorization level. Out of all this we expect to mix and match our strategies so as to put together a recommended financial package.

Based on our preliminary analytical results, we found some things that are surprising. In undergraduate education, access does differ by income group, but the breaking point is not where you think it would be. The fulcrum is family income at ten thousand dollars. Below that level students are unrepresented in post-secondary education proportionately to their part of the population and above ten thousand dollars they are overrepresented. The conclusion that there is a "middle-class squeeze" may not be true. We also found that once students get into post-secondary education, income is not the most important determinant of the type of institution they will attend. We found minority groups, undergraduate again, and also various income level groups reasonably represented throughout the whole spectrum of post-secondary education from the proprietary school to the university. This implied to us that institutions such as those we represent do as good a job as some of the others in attracting minority students and people from different income levels.

Again, once a student is admitted we thought we would find differential completion rates depending on income level and race. That turns out not to be so; once a student is admitted, a minority student or low-income student has as good a chance at completing the program as anybody else. These are some of our preliminary findings and they will no doubt have some impact on final recommendations of the Commission. For example, perhaps more money flowing into basic opportunity grant programs may not buy more access. Our preliminary analysis here suggests that we have reached a sort of plateau.

Let me now turn to uniform cost accountability, a subject that has been very painful throughout the life of the Commission. Here the views of the congressmen are very important. I tried to read them early in the game and what I thought I heard them saying was "Improve your financial reporting." With that exhortation in mind one of our committees put together a strategy to improve the reporting, and to tie whatever reporting system that might be recommended to the financing strategy that is adopted. Explaining the fact to some of the people on the Commission that we already had significant and substantial reporting responsibilities as institutions is difficult as well. Some of us did not understand that others of us engaged in research have to undergo audits from federal agencies regularly and that we have to negotiate periodically the indirect cost recovery rate which is used for our particular institutions. In addition, if in fact we were to go to a student-based financing system, then unit-cost data of the type that has been talked about would seem to be even more irrelevant

than some institutional support systems which might be put together.

To come full circle on this problem, we have said to ourselves that a credit-hour based analysis does not fit our institutions because it cannot capture the graduate work load. That is a valid statement in most instances where we have not as institutions had a student accounting system for graduate students to match that which we have for undergraduates. Those of you who are in state institutions with enrollment-generated financing formulas have probably long ago adjusted to the credit syndrome. This would be more of a problem I think for the private institution which has not had to play that game over the years.

We also say that graduate education and research cannot be separated. At the same time we press for full reimbursement for research and, quoting both direct and indirect costs, we say to ourselves, yes, we can cost out research separately if you want to pay for it. We must get our stories straight on that issue or we will lose a great deal of credibility in Washington and other places. I view this as very serious because as I finally read what the congressional people want, it is to make us an offer we cannot refuse unless we go under to some sort of cost-reporting mechanism. The congressmen want to be able to say that the universities have done it. The line of some of the congressional people is "Well, we really do not want to see that unit-cost information, we just want you to be able to do it." You can draw your own conclusions.

There are other approaches. Some of you have been involved with the Sloan nine-institution study. There the matter of joint product is handled in a very simple way. Research and service are viewed as byproducts of instruction and the costs of instruction are calculated as the net of reimbursed expenditures for research and service. If you are able to earn money on the side by selling your research and service wares, then that gets pulled out of the cost calculations for instructional purposes.

Another thing the congressmen are very concerned about was mentioned in the session earlier today. This is the idea of money shifting from one program to another. Senator Pell said to me straight-faced one day, that he wanted a little sheet on each institution that he could look at to tell how much they were spending on Babylonian archeology, and also whether they were diverting money into intercollegiate athletics. Either he has been conditioned by someone talking to him in an irresponsible fashion or the Senator was not aware of the flood of data that would inundate Washington if this kind of system were implemented. Frankly, I have come to the point where I am almost sadistic enough to let it happen. Seriously, I have taken the position that it is not responsible to do so, that one ought to argue for some-

thing that has meaning, something that institutions can reasonably produce, and that policy-makers can reasonably use.

I would close with an admonition to all of us. We always think of ourselves as a minority in the institutional population, but those institutions which range from category one-one to one-four in the Carnegie typology—from leading research universities to small doctoral-granting institutions—represent twenty-eight percent of the total collegiate enrollment in this country today. So, let us not undersell ourselves to that portion of the higher education spectrum that we represent. I am looking for help from others of you to see if we can give graduate education and research a fair shake. Let us remember that our answer cannot forever be that our activities defy measurement and subsequent rational expression.

Summary of Discussion Following the Remarks of Dr. Cartter, Dr. Breneman, and Dr. Kaludis

Dean George Fraenkel (Columbia) opened the discussion by expressing his admiration for two of the three panelists' coming to an Association of Graduate Schools meeting with nothing to say about graduate education. He went on to say that someone could not get a true picture of the life of any one institution from the "global" data on support presented by Messrs. Cartter and Kaludis. Such data hide local situations. Many kinds of support they mentioned are simply not available in certain fields or years of study. Quite another problem, he said, is the dilemma posed by using teaching assistantships as a major means of support. To do so might mean compromising the quality of undergraduate teaching. He questioned whether graduate deans had faced up to and met the challenges of continuing education for older students and people who want to return to school for graduate training late in life. Finally he expressed disbelief at figures that show equal attrition rates for minority and non-minority college students. He cited CUNY as an instance of this nation-wide figure's not applying to a specific urban situation.

David Breneman asked if anyone could give him a clear picture of first-year enrollments at his institution—how many students and how they are being supported. Dean Spriestersbach noted that many first-year students are not supported, and opened the question of the balance of support among fields. In the past, he said, when the sciences had been so liberally funded from outside, institutions committed large sums of their money to other programs, largely those in the humanities. With the withdrawal of traineeship money those formerly well-funded programs will be left begging. The real crunch will come, he said, next year, and then painful reallocations must occur.

Looking at first-year enrollment, Dr. Cartter presented figures showing a decline in first-year graduate enrollment rate, for both men and women, in relation to the number of Bachelor's degrees granted in the last five years. Dr. Charles Kidd asked Dr. Cartter whether he had a set of principles by which to construct a reasonable federal support scheme. Dr. Cartter said he would stay close to the Carnegie recommendation of approximately

thirty thousand merit-based portable fellowships, with some institutionally based.

Two examples of the difficulty of interpreting statistics were brought forward. First, although the absolute number of students taking the Graduate Record Examination last year decreased, this apparently had no correlation with present fall term enrollments. Secondly, Dean Milton Lipetz (Colorado) said that the number of teaching assistants was really related to the size of undergraduate enrollment, which continues to climb by one-and-one-half percent per year.

Dean Ian Loran (Wisconsin) suggested that another reason for a constant rise in TA positions was a holding pattern in the hiring of junior faculty. Dr. Cartter seemed to think this was so, and cited the example of Berkeley's physics department which fills some TA and RA positions with their recent Ph.D. recipients.

Addressing a question to Dr. David Breneman, Dean Vernon Ahmadjian (Clark) asked why a need analysis at the national level for opportunity grants would be so impractical. Dr. Breneman recognized that several graduate and professional schools were now requiring all three parts of the GAPSFAS form. He further noted that the interpretation and use of Part III—parents' financial resources—remains quite flexible at the institutional level. If this concept were transferred to the federal level, graduate schools would undoubtedly lose that flexibility.

REPORT FROM WASHINGTON

TALKS BY DR. J. BOYD PAGE, PRESIDENT OF THE COUNCIL OF GRADUATE SCHOOLS IN THE U.S.; AND DR. CHARLES V. KIDD, EXECUTIVE SECRETARY OF THE ASSOCIATION OF AMERICAN UNIVERSITIES

Dr. Page:

I find the temptation to make some comment about the general situation in Washington easy to resist. Nevertheless I would like to discuss several matters that might be of interest to you. There are many strategies to accomplish what we have been talking about this morning and one of the strategies upon which the Executive Committee and the officers of the Council of Graduate Schools have focused is Title Nine. The reason for choosing this is because it is already written into the law. It is obviously of low priority for the Administration and there has been no recommendation for funding. However, it is significant that the Congress did write it into the law. You may say that it is not very much, but it is all that we have. We feel that it is very important, in fact crucial, to make an attempt to get some funding, but even more important is to bring the present situation to the attention of decision-makers in Congress and the Executive Branch so that the issue can be kept alive.

The Higher Education Amendments are due to expire in the middle of the year, at the end of fiscal 1975, although they may be extended for another year. If the only section of the Higher Education Amendments relating to graduate education gets lost, then we are in very sad shape indeed. Overall, the strategy that is being followed now is to concentrate heavily on getting the maximum attention to Title Nine and having it extended, to concentrate on grants to institutions, and then to ask for some special-purpose fellowships.

It seems unrealistic to hope for any massive program of fellowship support in the immediate future; it is my own personal view that general fellowships are not likely to be a very saleable item to the Congress either. There will probably be a push for some portable fellowships that may be focused on minority groups. I believe that general institutional fellowships will continue for a little while in spite of what we now see as a low priority. Traineeships will be a much more saleable item and this is something that our group will press for rather hard.

The task force has drafted a position statement and a recommendation on Title Nine, and I would like to go over this with you very briefly.

Under Title Nine there is a general provision for institutional grants to improve the quality of graduate education. Included under these grants, were they ever funded, would be such things as faculty improvement, expansion of graduate/professional programs, acquisition of instruction materials, strengthening of cooperative arrangements and strengthening of graduate school administration. If funds were granted, up to two-thirds would be available for general purposes (Part A) and up to fifty percent of that would go to the total cost of books and equipment. The authorization is for thirty million dollars for the first fiscal year, which is now past, forty million dollars for this fiscal year, and fifty million dollars for next year.

Part B calls for the authorization of up to seventy-five hundred fellowships a year. These would be three-year fellowships. This too would not have a very high priority right now; Congress and the Administration have closed down much larger fellowship programs than that. Again, we have taken a rather pragmatic approach to try to get reestablishment of some scholarship programs and try to find something that would be more saleable to the Congress in terms of current thinking.

Part C calls for special fellowships for public service, limited to five hundred and having very favorable conditions. Part D is a rather curious provision. It calls for fellowships in domestic mining and mineral fuel conservation and for persons of ability with a disadvantaged background.

A most curious feature to many of us is that the most important part of this whole program, given the attitude of Congress and the Administration—namely, help for the minorities—has a restriction built in. Only a million dollars can be spent in this category (Part D) in any fiscal year. Title Nine, if it were funded, calls for up to a hundred and ten million dollars a year.

Let me outline the provisions of our position paper, which has already been adopted in principle and included in the American Council on Education position statement.

Under Part A, the general institutional part, we recommend funding of seven-and-a-half million dollars for fifty new programs for people to work in the general energy and environmental complex. This could be twenty-five programs with a three-year total support of three hundred thousand dollars each at chosen institutions. Another part of this would call for the establishment and strengthening of programs to prepare students for the public service, at a cost of three-and-a-half million.

Under Part B, the broad section that calls for the largest number of fellowships, we ask for five hundred fellowships specificially designed to facilitate the training of future teacher/researchers in programs

dealing with environmental energy and other major problems of national concern, at a cost of four-and-a-half million.

Under Part C, the public service fellowships, we have asked for full funding, again for five hundred fellowships. There is a great demand in this area and it is something that is very popular in Congress; three-and-a-half million dollars would be a major infusion into fields where there is almost no support at the present time.

In Part D, instead of asking for the mining fellowships, which obviously represent someone's lobby, what we are asking for would be scholarships for persons from disadvantaged backgrounds to undertake graduate and professional studies and fellowships for people to work in mineral fuel conservation. Whenever the opportunity arises it would be helpful to push for this a little or at least to keep the members of your congressional delegation alert to the fact that there is in the law a provision for graduate education.

We plan to send this statement to several more people and make as many needed improvements in it as we can. Within the Office of Education, among the people we have contacted, there has been very solid support for it. I think this falls right in line with their own thinking, and that of many people. I will then go to the Appropriations Committee, primarily to the people in the Office of Education, who will be drafting the next legislation. We want to do everything we can to keep it alive there.

[Dean Bock (Wisconsin) asked Dr. Page if he saw any strong opposition to specific parts of his recommendation at the level of the Office of Management and the Budget or the Administration. Neither Dr. Page nor Dr. Kidd were optimistic about getting federal money to fund institutional grants. The Administration seemed still committed to cuts in graduate student support. Both agreed that the real task was to make their case strongly, again and again.]

Dr. Kidd:

I would first like to talk about the state of appropriations for the next fiscal year. I will be very brief for there is not a lot to say. The Health, Education, and Welfare appropriation is certainly heading for a veto. The figure will be a billion dollars or so over the President's budget; the total package of appropriations for all agencies will be four to six million dollars over the two hundred and sixty-nine billion that the President proposed. With respect to all Office of Education and Health, Education and Welfare (including the National Institute of Health) monies, there is the probability amounting almost to a certainty that again we will be operating on a continuing resolution until next June. You will again experience the agony of not knowing what is available from the agencies.

The National Science Foundation appropriation is in good shape. The project budget for basic research is up by more than the cost of living, two hundred and eighty-five million compared with the two hundred and sixty-one level in 1973. Graduate student fellowship support is bad, and institutional support is down. One bright spot is in the Foundation for the Arts and Humanities. They had a budget of eighty-two million in 1972, and the one enlightened act in the whole budget process nearly doubled this to a hundred and fifty-three million. Congress is appropriating a hundred and eighteen and that will go through.

The general prospect, however, is essentially unchanged. The real point at which this group can exercise any influence, if it wants to, is in the appropriations hearings next spring. I hope there would be some way of raising a voice from this group on the various appropriations because in general, Congress is more receptive to the things that we are interested in than the Administration is at this point.

I would like to turn to the National Board on Graduate Education, and the Commission on Financing Post-secondary Education. The National Board on Graduate Education, I believe, is going to produce a much sounder, more rational set of propositions than are going to come out from the National Commission. In fact, part of the design was to compensate for the almost certain deficiencies of what the National Commission is going to say by having a strong counter-proposition coming out about the same time. I think it is quite important that the AGS be part of that procedure. This is possibly because I work very closely with both David Henry and David Breneman. There should be some mechanism established whereby there could be an input from AGS into that process. Over the course of the last few months, I have been apprehensive about the influence which the National Commission report can have. We have tried to follow one of two courses, either to get the Committee to say there is a complicated area that we have not had time to look at, or to get enough fed into the Commission's work so that they will come out with some propositions that we can live with.

Meanwhile, there is the possibility that the AAU will come out with a statement of its own, assuming for example that we have some sort of philosophical parting of the ways with the National Board on Graduate Education (which I doubt). I have the feeling, in contrast to the past couple of years, that things are beginning to jell. For a while I think people were in a state of shock over all of the sudden changes in the Administration's policies and the shift in the labor market. Now, however, I think many people have been thinking about the problems and are beginning to reach a consensus and a set of principles about which we can be enthusiastic. It has been essential

to spend this time evolving a base for argument, and again I hope that AGS can play a role by simply presenting its views on what ought to be said.

[In discussion, Dean Benjamin Howell (Penn State) observed that in two days no one had mentioned why students do not go to graduate school and why they leave. From his experience, the major reason was financial. He wanted to know how to gather such data as to persuade Congressional representatives that real students fail to achieve their educational goals in graduate school because money is not available.

Dr. Page wondered if Dean Howell did not have persuasive data in his own financial aid office—information on loans, self-help, etc. Another delegate pointed out that an important consideration was the difficulty graduate students have in obtaining loans. Dr. Kidd agreed that the guaranteed loan outlook was dreadful.

Dean Michael Brennan (Brown) and David Deener (Tulane) noted an apparent shift from enrollment in full four-year Ph.D. programs to higher enrollments in part-time and Master's degree study. Dean Lyle Jones (North Carolina) qualified this by saying that professionals in, for example public health and social work, come back to graduate school for more training after they have received a Master's degree. These students, he argued, were of a different kind from those of central interest to AGS members. The density of fellowships, traineeships, and assistantships was really at the doctoral level, although enrollment figures seem to argue the opposite.

Finally, a delegate from the floor warned that the Administration notices the latter not the former fact.]

SPECIAL REPORT: "METHODOLOGY TOWARD ASSESSING QUALITY IN PH.D. PROGRAMS"

BY DEAN LINCOLN E. MOSES, STANFORD UNIVERSITY

The GRE Board and CGS have undertaken the task of trying to bring into being a satisfactory method of assessing the quality of Ph.D. programs. I say satisfactory because I mean to embrace more than the reputational studies of Cartter, Roos, and Andersen which, though valuable are not universally regarded as wholly satisfactory.

Reliable and satisfactory methods of assessing the quality of graduate programs have many valuable applications. They would be of use to present and prospective graduate students in making decisions about where to study, and perhaps what to study. They would be useful in institutions for making the kinds of decisions that deans and committees sometimes must make. If they were sufficiently informative, they would be useful within departments for self-study. They can be used by groups such as state panels or government agencies where decisions depending upon quality are made. Satisfactory ways of gauging quality would help them make decisions more sensibly than they otherwise might do.

The earlier ACE reputational studies showed two salient facts: first, that there are receptive audiences for such information; and second, that the reputational study itself has a great deal of value, and is not very expensive or cumbersome. However, it is a controversial method and not as ample in its informational basis as one might hope for. ACE also made it clear that they would not do this again. If further studies of quality of Ph.D. programs are to be made, they will not be made there, and probably should not be made in the same way.

One powerful reason for proceeding to develop a sound methodology is the almost certain emergence of ratings put out by people with little to gain but income or fame. This is a very strong argument for doing something sound, getting real methods developed.

Our committee agreed on certain principles. They would limit the study to a chosen few Ph.D. fields. They identified three purposes that were germane to Ph.D. programs: training of research scholars, training of teachers, training of practitioners. They agreed further that they should look for quality characteristics which were applicable to many fields of study. They agreed that quality should not be regarded

as a uni-dimensional entity like volume, but as a complex resultant of several factors.

They then turned to a small but intentionally varied sample of sixty universities that grant Ph.D.'s, from the Northeast, the East, the Midwest, and the South. There was an intentional division between public and private institutions and there was diversity of size built into the sample. At each university one person whom we can think of as a graduate dean received a questionnaire. Some members of the GRE Board are not graduate deans and they were all asked to respond, so we received in all sixty-three questionnaires.

There were in fact two questionnaires sent. The first asked what characteristics of a graduate program are important to understanding and appraising its quality. This first questionnaire inquired about fifteen characteristics that are associated with faculties: How well are they trained? How much do they care about students? What is their research productivity? Where were they trained? There were seventeen questions about students; ten about resources, library, budget, laboratories, plant buildings, and so forth; and twenty-one on operations, which means things like drop-out rates.

Your handout (printed as "A Summary List of Measures for the Assessment of Quality in Ph.D. Programs," pp. 58-68) lists in four tables the surviving factors. The numbers on the left-hand margin labelled "mean importance" indicate the average response given by the deans in terms of "essential," "important," "not very important," or "useless." The value 3.57 for the first item means that on the average, the characteristic was judged to be a little closer to "essential" than "important" in assessing a program's quality.

When the returns were in, a second questionnaire was developed and it had quite a different structure from the first one. In the first place not all of the original characteristics were preserved. Of the surviving characteristics, the deans were then shown a list of possible measures that might get at these characteristics. Taking, for example, "Academic Training of Faculty," the possible measures are "percent of the faculty with Ph.D.'s or equivalent degrees," "percent of Ph.D.'s from top programs in each field as defined by a reputational survey," "average grades in graduate school," as some ways of getting at the quality of the faculty. The respondents looked at all of those and were asked to indicate which one they thought was best. Not only did they say which ones they liked best, but they then had to score every one of them as to how good a measure they thought it was. These judgments on a four-point scale were averaged and the results appear in the column headed "Mean Adequacy."

Finally, the deans were asked if the information for the proposed

measure was in fact available at their institutions, and of the forty-three responses tabulated at this stage, all said they could tell what percent of the faculty had Ph.D.'s or equivalent degrees. That holds the record for availability among all items in the questionnaire.

The Committee considerably reduced the very open-ended list of possibilities, and noted whether these measures proved to be available or acceptable to the institutions. In light of that, with definitive recommendations, we will launch an exploratory study.

This study is planned to center on three disciplines. Twenty institutions will cooperate on all three of these disciplines, and there will be a local coordinator to help it all happen. Questionnaires will be given to students about the graduate program, and information will be solicited from faculty members in these disciplines and from administrators. At this early stage there will also be information solicited from recent graduates of the program. Surely a study of this kind is a large project and cannot possibly be propagated in the way that the Cartter report was. Therefore, a short check-list is sought. Such a list should be workable and much more informative than a reputational study.

It is important that the operational variables showed up strongly. These graduate deans gave high importance ratings to operational ratings. It is also notable throughout the results that considerable confidence was placed in reputational variables. They are important and they are informative; they are just insufficiently comprehensive and specific.

A SUMMARY LIST OF MEASURES FOR THE ASSESSMENT OF QUALITY IN PH.D. PROGRAMS

Table A.1

FACULTY Characteristics and Measures

Characteristic		Measures		
Mean importance		*Mean Adequacy*	*Percent Preferred*	*Percent Available*
3.57	*A.* Academic training of faculty			
	1. Percent with Ph.D.'s or equivalent degrees	3.37	33%	100%
	2. Percent of Ph.D.'s from "top" programs in each field, as defined by a reputational survey	3.33	42	65
	3. Appropriateness of specialty areas of training to purposes of the program, as evaluated by a visiting team of experts	3.00	09	12
3.41	*B.* Research (or other scholarly or creative) *activity*			
	1. Average number research proposals funded in the last three years per FTE faculty	3.40	30	09
	2. Average number invited presentations of research results in the past year (visiting lectures, colloquia, workshops, professional meetings, etc.) per FTE faculty	3.33	16	37
	3. Percent of faculty actively involved in the publication of research results (journal editor, editorial board members, referee for submitted articles, etc.)	3.26	14	49
	4. Average number research projects in progress per FTE faculty	3.02	26	21
3.20	*C.* Research (or other scholarly or creative) *productivity*			
	1. Weighted average number publications (giving progressively more weight to referred journals, single authorship of articles, senior authorship of books, etc.) in the past three years (substitute number patents or artistic performances or products where appropriate)	3.74	77	28
	2. Average number journal articles published in the last three years per FTE faculty	3.51	09	67
3.17	*D.* Teaching effectiveness			
	1. Avg. ratings by students on a course and teacher evaluation form	3.10	37	21
	2. Presence of innovative teaching procedures and/or outstanding instructional materials, as judged by visiting panel of experts	3.10	16	07

Faculty (*cont.*)

Characteristic		Measures		
Mean importance		*Mean Adequacy*	*Percent Preferred*	*Percent Available*
3.11	*E.* Concern for student development and welfare			
	1. Average student (or former student) rating on a scale measuring faculty concern for student development and welfare, accessibility, advising skill, etc.	3.23	58%	07%
2.94	*F.* Involvement in program affairs			
	1. Faculty degree of agreement with and commitment to the purposes and goals of the program	3.26	47	05
	2. Faculty satisfaction with influence on important decisions concerning the program	3.21	37	07
2.93	*G.* Teaching experience			
	1. Avg. no. of years of teaching experience at the college or university level in appropriate area of specialty	3.05	72	70
2.88	*H.* Honors and awards; national professional recognition			
	1. Average number professional honors and awards per FTE faculty over the past three years	3.33	40	35
	2. Average reputational rating of the faculty among colleagues (cf., ACE ratings)	3.14	30	37
2.78	*I.* Group morale or *esprit*			
	1. Avg. faculty-reported satisfaction with program leadership, enthusiasm for the program, loyalty, involvement, etc.	3.45	51	09
	2. Relative vitality vs. malaise among the faculty, as rated by a visiting panel of experts	3.23	14	09
2.55	*J.* Concern for undergraduate learning			
	1. Quality of a program to train and supervise teaching fellows, as rated by:			
	a) students	3.12	14	07
	b) faculty members	2.95	02	02
	c) visiting panel of experts	2.93	07	05
	2. Faculty-reported sensitivity to the interests, needs, and aspirations of undergraduates	2.86	35	02
	3. Percent of graduate faculty who teach at least one undergraduate course per year	2.86	14	67

Table A.2

STUDENT Characteristics and Measures

Characteristic		Measures		
Mean importance		*Mean Adequacy*	*Percent Preferred*	*Percent Available*
3.61	*A.* General academic ability of students entering the program			
	1. Avg. score on graduate aptitude test (GRE, MAT, etc.)	3.42	21%	67%
	2. Avg. undergraduate GPA	3.37	35	79
	3. Avg. score on appropriate GRE Advanced Test (or other achievement test)	3.09	07	60
	4. Percent of enrolled students with national fellowships (NSF, Woodrow Wilson, etc.)	3.07	09	65
3.61	*B.* Achievements, knowledge, and/or skills of students at time of completion of degree			
	1. Excellence or uniqueness of dissertations and theses in the last three years, as evaluated by external judges	3.47	26	05
	2. Percent of graduates in the last three years who obtained employment directly related to their field of specialization	3.33	26	47
	3. Percent of graduates in the last three years who published something prior to the degree	3.24	23	28
3.38	*C.* Professional accomplishments of graduates			
	1. Percent of graduates occupying positions of leadership and influence in the field, as judged by outside experts	3.37	23	02
	2. Avg. number publications by those who graduated in the last five years	3.30	21	09
	3. Avg. rating by employers on knowledge, skill, and performance of recent graduates	3.14	12	0
	4. Percent of graduates currently employed by doctorate-awarding universities	3.09	12	32

Characteristic		Measures			
Mean importance		*Mean Adequacy*	*Percent Preferred*	*Percent Available*	
	Student (*cont.*)				
3.37	*D.* Gains in student knowledge and/or skills during their degree program				
	1. Avg. evaluation by faculty advisers and by assistantship/internship supervisors of the "growth" observed in students over a two year period	3.12	40%	19%	
3.15	*E.* Career interests of students				
	1. Congruence of student career interests with program purposes and emphases, as judged by enrolled students	3.10	44	07	
	2. Self-reported career plans of degree recipients	2.93	14	16	
2.91	*F.* Student perceptions of program quality				
	1. Avg. alumni (1-5 years) rating of experiences in the program	3.58	72	02	
	2. Avg. student rating of the value of specified academic experiences in the program	2.98	12	07	
2.89	*G.* Satisfaction with various aspects of the degree program				
	1. Percent of students who would recommend the program to others with similar interests and abilities	3.40	51	05	
	2. Avg. student-rated satisfaction with specified academic and non-academic aspects of the program	3.02	26	09	
2.81	*H.* Group morale or *esprit*				
	1. Student sense of community, feeling of shared interests and involvement in worthwhile activities, as rated by students	3.30	23	09	
	2. Avg. student satisfaction with rate of academic progress	2.88	12	07	
	3. Avg. student-reported score on a scale measuring satisfaction with program	2.86	26	07	

Table A.3

RESOURCES and Measures

Characteristic *Mean importance*		Measures *Mean Adequacy*	*Percent Preferred*	*Percent Available*
3.60	*A.* University financial support for the program			
	1. Judgments about the adequacy of university support relative to program purposes by a visiting team of experts	3.10	30%	12%
	2. Education and general expense budget per FTE student	3.00	14	70
	3. Ratio of program budget allocation to total university allocation for Ph.D. study	2.83	23	50
3.60	*B.* Library			
	1. Adequacy of relevant holdings as judged by:			
	a) visiting team of experts	3.45	44	21
	b) faculty members	3.43	26	28
	c) program chairman	3.07	0	23
3.47	*C.* Laboratory equipment and facilities (including facilities for the creative arts)			
	1. Presence of laboratory/creative equipment considered essential or important by experts in the field	3.56	42	26
	2. Adequacy of laboratory equipment and facilities as rated by:			
	a) visiting team of experts	3.53	19	16
	b) faculty members	3.40	28	23
3.18	*D.* External financial support for the program			
	1. Outside funds as a percent of total program budget	3.42	35	65
	2. Avg. dollar income per FTE faculty from outside sources over the past three years	3.28	44	60
	3. Dollar amount of federal research project grants and contracts over the past three years	3.16	12	77
3.13	*E.* Purposes and strengths of parent institution			
	1. Reputation of university as rated by knowledgeable educators	3.49	33	21
	2. Congruence of program and university purposes as judged by visiting panel of experts	3.19	14	16

Resources (*cont.*)

Characteristic *Mean importance*		Measures *Mean Adequacy*	*Percent Preferred*	*Percent Available*
	3. Level of support for the program from central university administrators, as judged by visiting panel of experts	3.07	12%	12%
3.11	*F.* Financial support for students			
	1. Avg. dollars for all forms of financial assistance per FTE student	3.45	49	67
	2. Percent of students receiving any form of financial assistance	3.14	23	72
	3. Percent of students who hold fellowships or grants from external sources	2.98	12	77
3.07	*G.* Computer facilities			
	1. Adequacy of computer facilities for needs of the program as rated by:			
	a) visiting team of experts	3.44	33	14
	b) faculty members	3.37	21	30
	c) program chairman	3.14	05	33
	d) students	3.12	07	23
2.75	*H.* Classroom and office space for the program			
	1. Adequacy of classroom and office space as rated by:			
	a) visiting team of experts	3.05	32	14
	b) faculty members	2.91	19	19
	2. Avg. square feet of office and research space per FTE faculty	2.91	14	07

Table A.4

OPERATIONS Characteristics and Measures

Characteristic	Measures		
Mean importance	*Mean Adequacy*	*Percent Preferred*	*Percent Available*
3.49 *A.* Purposes of the program			
1. Clarity of program purposes and plans, as judged by:			
a) visiting panel of experts	3.28	23%	07%
b) recent graduates	3.26	14	02
c) faculty members	3.19	21	16
d) program chairman and/or graduate dean	3.14	09	23
2. Relative emphasis on research, teaching, and service, as judged by visiting team of experts	3.05	02	14
3.45 *B.* Course and program offerings			
1. Courses and other available experiences appropriate to purposes of the program and specialty training of the faculty, as judged by:			
a) visiting panel of experts	3.56	44	09
b) faculty members	3.26	23	19
c) students	3.05	0	09
2. Relative need for curriculum review and updating as judged by a visiting panel of experts	3.32	12	09
3.43 *C.* Admissions policies			
1. Judgment of whether admissions standards should be higher or lower, as rated by:			
a) visiting panel of experts	3.39	28	12
b) faculty members	3.05	09	21
2. Percent of qualified applicants who are admitted, as reported by the admission committee	3.09	21	67
3. Relative selectivity of graduate and undergraduate students, as reported by the admissions committee	3.07	23	53
4. Clarity of admissions procedures and standards, as judged by visiting panel of experts	3.00	0	12

Operations (*cont.*)

Characteristic — *Mean importance*		Measures — *Mean Adequacy*	*Percent Preferred*	*Percent Available*
(not rated)	*D.* Provision for the welfare of faculty members			
	1. Median salary by rank	3.26	21%	86%
	2. Extent of department and university support for the principle of academic freedom, as judged by outside experts	3.23	12	14
	3. Excellence of fringe benefits package, as judged by outside experts	3.10	02	16
	4. Faculty satisfaction with freedom to plan courses and conduct research without internal or external interference	3.07	19	09
	5. Provision for assistance to new and young faculty, as judged by:			
	a) visiting panel of experts	3.07	07	07
	b) faculty members	3.00	07	14
	6. Average teaching load	3.02	02	60
3.41	*E.* Provision for the evaluation of student progress			
	1. Clarity of requirements and standards for progression from entrance to candidacy with stated times for review and evaluation, as judged by:			
	a) visiting panel of experts	3.16	26	12
	b) program chairman	3.16	21	30
	c) students	3.14	21	16
3.37	*F.* Program leadership and decision-making			
	1. Quality of leadership provided by the program chairman as judged by:			
	a) visiting panel of experts	3.44	21	09
	b) graduate dean	3.40	19	37
	c) faculty members	3.37	33	16

Operations (*cont.*)

Characteristic		Measures		
Mean importance		*Mean Adequacy*	*Percent Preferred*	*Percent Available*
3.31	*G.* Job placement of graduates			
	1. Percent of degree recipients in last three years who were placed in positions directly relevant to their graduate education	3.56	40%	42%
	2. Satisfaction with program efforts to place graduates, as judged by students	3.26	14	12
	3. Percent of recent graduates who joined faculties at major doctorate-producing universities	3.07	07	51
	4. Profile of jobs taken by former students and graduates in the last three years	3.00	19	14
3.30	*H.* Provision for the advisement of students			
	1. Quality of the advising system, as rated by:			
	a) recent graduates	3.42	40	02
	b) students	3.42	28	07
	c) visiting panel of experts	3.02	05	07
3.29	*I.* Student-faculty interaction			
	1. Student-reported satisfaction with opportunity to work closely with at least one member of the faculty	3.42	46	05
3.17	*J.* Internships or other opportunities for relevant student experiences			
	1. Value of the internship or assistantship as rated by students who have completed the experience	3.31	46	14
	2. Percent of students who hold a research assistantship in the course of their attendance	3.14	09	70
	3. Percent of students who hold a teaching assistantship in the course of their attendance	3.12	09	70
	4. Percent of students who hold an apprenticeship or other preprofessional work assignment in the course of their attendance	3.07	07	46

Characteristic	Mean importance	Operations (*cont.*)	Measures: Mean Adequacy	Measures: Percent Preferred	Measures: Percent Available
K.	3.16	Degree requirements			
		1. Flexibility of program requirements sufficient to meet individual student needs, as judged by:			
		a) visiting panel of experts	3.33	33%	09%
		b) students	3.15	16	07
		c) faculty members	3.02	05	16
		2. Clarity of specified competencies and qualities expected of graduates preparing to be researchers, teachers, or professional practitioners, as evaluated by:			
		a) visiting panel of experts	3.20	09	09
		b) faculty members	3.17	02	14
		c) students	3.07	0	09
L.	3.07	Enrichment with visiting lecturers, colloquia, etc.			
		1. No. visiting lecturers, colloquia, etc., scheduled in the past six months			
		2. Satisfaction with enrichment efforts of the program as rated by:			
		a) visiting panel of experts	3.43	46	49
		b) students	3.13	19	05
		c) faculty members	3.12	09	07
M.	2.94	Relationships with cognate programs	3.12	05	14
		1. Percent of program students enrolled for one of more courses in another department			
		2. Relationships and interchanges with cognate programs as rated by:			
		a) program chairman and/or graduate dean	3.14	26	51
		b) faculty members	3.10	16	23
		c) students	3.05	14	19
		d) chairmen of cognate departments	3.05	07	14
			3.05	07	21

Operations (*cont.*)

Characteristic		Measures		
Mean importance		*Mean Adequacy*	*Percent Preferred*	*Percent Available*
2.92	*N.* Efficiency of degree production			
	1. Percent of those who enroll who earn the Ph.D.	3.45	42%	72%
	2. Estimated total avg. time required to complete the degree	3.14	09	58
	3. Ratio of doctorates awarded to no. of graduate faculty and to no. of enrolled students	3.02	23	65
2.86	*O.* Plans for the future of the program			
	1. Appropriateness and detail of middle-range and long-range plans for the program, as evaluated by:			
	a) visiting panel of experts	3.37	46	12
	b) faculty members	3.07	12	19
	c) program chairman and/or graduate dean	3.02	19	30
2.83	*P.* Size of the program			
	1. No. of enrolled students and first-year students in each of the past four years, by full-time and part-time	3.31	46	84
	2. Student/faculty ratio	3.07	28	84
	3. No. of graduate faculty members in each of the past four years, by full-time and part-time	3.00	05	77

REPORT OF THE COMMITTEE ON COMMUNICATIONS WITH THE PUBLIC

BY ASSOCIATE VICE-PRESIDENT JOHN MCCRONE WITH INTRODUCTION BY DEAN ROBERT M. BOCK

Dean Bock:

One of the most important tasks in any organization is to be self-critical. Associate Vice-President John McCrone of Iowa has chaired a committee whose task it was to assess the effectiveness of the Association of Graduate Schools.

Associate Vice-President McCrone:

On behalf of committee members Dean May Brodbeck (Minnesota), Dean Lyle Jones (North Carolina), Dean John McKinney (Duke), and Dr. Charles Kidd of the Association of American Universities, I will read a mercifully brief report.

At the twenty-third annual conference in Minneapolis the Committee on Communications with the Public, then chaired by Dean Spriestersbach (Iowa) recommended to the Association that it give serious consideration to the establishment of a mechanism for presenting to the public the rationale and value of a strong national system of graduate education. In April of 1973 the present committee met to discuss how this recommendation might be implemented. As a result of these discussions the following proposal was forwarded to the Executive Committee of AGS for their consideration. The proposal is entitled *Strengthening the Case for Graduate Education* and is essentially a series of assertions and propositions.

First, the roles of graduate education and its contributions to the society are widely misunderstood and undervalued. The major sources of this lack of understanding are the inadequacy of data on all aspects of graduate education, inadequate presentation of facts, and inadequate explanations of functions. Many individuals and groups have developed data and the rationale for graduate education. These include individual scholars, some federal agencies, the Newman Committee, the National Board on Graduate Education, the Carnegie Commission and the National Education Association. However, there is no effective continuing locus of responsibility for promoting studies and drawing together data in a form understandable to a variety of audiences, for example the general public, State Legislatures, Congress, or the Executive Branch of the Federal Government.

There is, then, a need to establish a central point of responsibility for stimulation of study and for integration of information pertinent to graduate education. In particular the case for sustaining quality of graduate education needs to be made forcefully, and while this task is properly and necessarily shared by many individuals and groups, the universities themselves need a more effective means of drawing together and presenting the case for graduate education. The most logical place for this function is within the AAU, with close working relationships with AGS and CGS.

It is recommended that the AAU establish an office for the study of graduate education, appropriately staffed to be responsible for the function outlined above and that the AGS designate a committee to advise on the operations of the office. This committee proposal was approved by the AGS Executive Committee and they in turn transmitted it to the AAU Executive Committee. After consideration by that committee the proposal was then presented to the Presidents of the AAU Institutions and it received their endorsement. Doctor Charles Kidd, Executive Secretary of the Association was authorized to take whatever steps he deemed appropriate to develop the staff functions in his office.

Summary of Discussion Following the Report of the Committee on Communications with the Public

Mr. McCrone looked to Dr. Charles Kidd to bring the membership up to date on the status of the recommendation.

Dr. Kidd said that he had not as yet hired anyone, for two reasons. First, he has worked closely with David Breneman from the National Board on Graduate Education which is presently preparing reports on graduate education. Secondly, he felt he had not found the right person for the job. Dr. Kidd wanted to take special care to see that the extra person was really needed and that no duplication of functions would take place.

Mr. McCrone again stressed the need for some central office and staff charged with the responsibility of collecting data for formulating national policies—a satisfactory system of government support for example. He praised the efforts of J. Boyd Page to get early enrollment data, but suggested that the crying need was for a "Committee on Public Affairs," directed to strengthen relationships among member institutions, Congress and the Administration. Such a committee, he suggested would work with Dr. Kidd's office.

Dean Bock (Wisconsin) noted that there is often tremendous misunderstanding on the part of the Congress and the Office of Management and the Budget as to how existing federal programs affect graduate education. Dean Spriestersbach (Iowa) reminded the members of how sensitive an issue this kind of influence is. Because they are quality research institutions, member schools are in a stronger position to argue for research support. But this special position makes arguing for a national policy for all graduate schools very difficult. Members are committed to maintaining the high quality of excellent institutions but at the same time feel a need to consider

the special needs of fellow graduate schools. AGS member institutions being themselves heterogeneous in size and needs, it seems to make sense to argue for the inseparable relation between graduate education and all of higher education.

Dean Spragg (Rochester) expressed the opinion that Dr. Breneman of the National Board should remain at a critical distance from AGS interests. What is needed, therefore, is a person to represent and argue AAU/AGS cases in Washington and the sooner we get such an advocate the better.

Although some of us have very good legislative representatives, Dean Fraenkel (Columbia) observed, others do not. Perhaps the time has come, as Dr. Kidd suggested, when our situation has so changed that all of us need more input, more data on a fixed and regular basis. So much goes on in Washington that all representatives—individual, institutional, and organizational—are becoming necessary. Mr. McCrone seconded the point by noting that private institutions often have ready access to key figures, especially committee chairmen in Washington, while state schools cultivate contacts in their legislatures.

Dean Donald Kibby (Syracuse) wondered whether Washington has not lost sight of graduate schools' responsibility to help students prepare for and enter a fully professional life. He found it a depressing possibility to have to say to a bright, talented student, "Society has no place for you."

Dean Arliss Roaden (Ohio State) asked Mr. McCrone whether his committee had given any thought to specific guidelines, missions, and projects for the new staff to explore. McCrone answered that they had not and were implicitly relying on the AGS Executive Committee for guidance.

REPORT OF THE COMMITTEE ON TESTING 1972-73

LIAISON between the Association of Graduate Schools and the GRE Board is provided by this committee. Each year AGS appoints one new member to the GRE Board to a four-year term, replacing a retiring AGS appointee. The four AGS appointees who are current members of the GRE Board together with a representative of the program direction staff at Educational Testing Service constitute the membership of the AGS Committee on Testing. The full GRE Board met twice during the year to review activities and operation of the program, to consider and act on proposals for new projects and research and to act on policy matters. The standing committees of the Board, the Executive, Research, Services and GSFLT Committees, met several times as well.

The report which follows discusses briefly some of the major activities and projects which have occupied the GRE Board over the past year.

GRE Program Operations

The 1972-73 year was one of serious operational problems, a slight decline in candidate volume (for the first time in the program's history), increased costs and, on the positive side, the introduction of several new services.

Operationally, the major problems were associated with the implementation of a new GRE operating system for test scoring and reporting, which ironically was intended to improve services and reduce costs. Services in the areas of on-time reporting and transcript service were delayed during the year and institutional and candidate inconvenience and problems as well as significant cost overruns resulted. The nature and extent of the operational problems were discussed in a widely distributed *GRE Board Newsletter*.

An ETS Task Force was created to investigate the nature of the problems and to recommend solutions. This group submitted its report in the late spring with twenty-six separate recommendations designed to provide in 1973-74 and the future a GRE operation which would be on time, effective and at minimum cost. These recommendations included such things as adding restart capabilities to some computer

programs, more effective scheduling, changes in computer programs and clerical procedures, developing alternative processing paths, and a complete systems test of the full system as amended prior to the operating year. They are currently being implemented and the program has every expectation that the 1973-74 operation will be smooth and on time.

Partially because of operating problems and partially due to a drop in candidate volume, GRE Board expenses exceeded income by a significant amount. This resulted in exhausting the Board's Reserve Fund and a significant underwriting of the program by ETS. The Board and ETS staff are taking major steps during the current year to put the program back on a positive financial footing. These activities include reduction in test development and research expenditures, changes in operational procedures and specifications designed to cut costs without reducing services, putting the Minority Graduate Student Locater Service on a self-supporting basis and shifting the administration of the GSFLT program to coincide with GRE administrations. A small (50¢) increase in Aptitude and Advanced Test fees was also necessary. Therefore, in spite of projected candidate volumes at or below the 1972-73 level, it is hoped that the program finances for 1973-74 and beyond will be solid.

Graduate Programs and Admissions Manual

A joint publication of the Council of Graduate Schools and the GRE Board, the *Manual* was available for the first time in September. The *Manual* includes institutions awarding a master's degree or higher in one or more fields who completed and returned the data collection forms sent to them in the beginning of 1972. Over 500 institutions appear in one or more volumes. The four volumes include information in the following areas:

Volume A—Biological Sciences, Health Sciences, and Related Fields
Volume B—Arts and Humanities
Volume C—Physical Sciences, Mathematics, and Engineering
Volume D—Social Science and Education

Sales of the 1972-73 edition exceeded expectations and one volume had to be reordered during the year to meet demand. A total of about 68,000 volumes were distributed.

A revised edition of the *Manual* will be available after September 1, 1973 at a price of $3.00 per volume. As in 1972, complimentary sets will be sent to the graduate deans of participating institutions this fall.

Minority Graduate Student Locater Service (MGSLS)

In March 1972 the GRE Board approved the introduction of a Minority Graduate Student Locater Service in the fall of 1972. The Locater Service is designed to help identify prospective graduate students who are members of racial and ethnic minorities in the United States to graduate schools for possible admission. There is no fee to the student and during 1972-73, since the service was considered experimental, no fee was charged to graduate schools.

Graduate schools were allowed to request student names based on any combination of five factors: intended graduate major, ethnic background, residence, region of preference for study, and immediate degree objective. GRE scores are not involved and it is not necessary to take the GRE in order to participate in the Locater Service. The Locater Service has been under the direct policy control of a special committee.

The service was announced to graduate deans in August 1972 and, in early fall, participation materials were distributed to 230 institutions who expressed an interest in participating. Also in early fall, the service was announced to 1,800 undergraduate institutions, and student materials were distributed to the schools for dissemination. Two searches were conducted—the first in December and the second in April. Nearly 5,300 completed questionnaires were submitted by students in time to be included in the winter search and 118 institutions submitted selector forms. For the April search, nearly 6,300 students submitted questionnaires and 148 institutions participated.

In January 1973 the GRE Board Executive Committee approved a proposal for continuing the Locater Service through 1973-74. The proposal included the establishment of an institutional participation fee ($340.00 for the use of up to three selector forms during two searches) and the continuation of the Policy Committee's existence through November 1973, with the charge of making recommendations by September regarding continued operation of the Locater Service in 1974-75 and beyond.

In June 1973 the Locater Service was announced for 1973-74 to graduate schools and undergraduate schools and to students through their undergraduate schools and through an order form in the 1973-74 GRE *Information Bulletin*. As in 1972-73, two searches will be made, in November and March. Graduate school selector criteria remain the same as in the past.

Panel on Alternate Approaches to Graduate Education

Approved in September 1971 by the GRE Board and funded jointly with the Council of Graduate Schools, the Panel on Alternate Ap-

proaches to Graduate Education was appointed in November 1971 and held its first meeting in February 1972.

The objectives of the Panel are to identify the emerging trends and innovations in graduate education and to recommend a reasonable course of action for the graduate schools in the United States to take in the next years in response to these changes. Specifically, the Panel has been interested in external degrees and the modification of programs to accommodate students whose life circumstances prevent them from attending graduate school in a normal pattern. Also of interest have been programs designed to produce practitioners and problem-solvers concerned with social issues.

During 1972-73, the work of the Panel and its committees led toward the publication of the final report, expected in November 1973. Two plenary sessions and several committee meetings were held. A preview of the final report will be presented at the September 1973 GRE Board meeting. Additional plans call for a one-day conference prior to the Council of Graduate Schools meeting in December 1973, possibly leading to a second publication of the proceedings of that conference. After the publication of the final report and the pre-CGS conference, the Panel will be discharged.

Annual Graduate Enrollment Survey

The second annual Council of Graduate Schools-GRE Board survey of graduate enrollment was conducted during 1972-73. This year's survey was divided into two sections, the second portion adding to the scope of the 1971-72 survey by concentrating on information by academic discipline. The response rates for both portions were high. Reports have been provided to CGS, to the GRE Board, and to the higher education community at large.

Minority Graduate Program Survey

The GRE Board and the Council of Graduate Schools jointly sponsored a survey to determine what programs for recruiting, selecting, and educating minority and/or disadvantaged graduate students are currently in existence in CGS member institutions. Of 302 institutions sent survey materials, 231 (79.8%) responded by September 1972. An analysis of the information obtained has been reported in a May 1973 publication by I. Bruce Hamilton, *Graduate School Programs for Minority/Disadvantaged Students*, circulated to CGS members and to the graduate community generally. A modified version of this survey has been approved for 1973-74.

Invitational Conference on Cognitive Styles and Creativity in Higher Education

In January 1972 the GRE Board Executive Committee approved an Invitational Conference on Cognitive Styles and Creativity in Higher Education. The Conference was held in Montreal on November 8-10 and was well received by the 70 administrators, researchers, faculty, and ETS staff members present.

Regional Conferences on Graduate Admission

In conjunction with the regional meetings of the graduate school associations, the GRE Board held sessions covering the use and misuse of the GRE, recruitment and admission of minority students, and the Graduate and Professional School Financial Aid Service (GAPSFAS). The presentations included a discussion by Raymond Anderson, Assistant Dean of the Graduate School at Columbia University, on the use of need as a criterion for determining financial assistance and an overview of the GAPSFAS by Constance White, Associate Program Director at ETS.

Conference of Deans of Black Graduate Schools

Funded by the GRE Board during the past year, this conference is set for October 1-2 in Atlanta. Although final planning is not yet complete, the focus of the conference is expected to be on the present and future role of Black graduate schools and on the identification and solution of common problems of Black graduate schools. It is hoped the conference may lead to the establishment of a permanent organization of participating deans as a regular means of exchanging concerns and ideas.

Thinking About Graduate School (TAGS)—A Planning Guide

Originally conceived in early 1971, this publication is now complete and in production. This guide will contain an overview of graduate study and chapters on admission to graduate school and finances for graduate study. In addition, the publication will contain a descriptive statement of each discipline in which GRE Advanced Tests are offered, including discussion of prerequisites most commonly required for admission to graduate study, opportunities for employment for holders of graduate degrees, prospects for minority students, and sources of additional information.

Test Development

The results of the GRE Advanced Test restructuring which had been in process for the two previous years were evident in 1972-73.

Nine of the 19 Advanced Tests reported subscores for the first time effective with the October 1972 administration. Subscores were reported for the following tests: Biology, Engineering, French, Geography, Geology, History, Music, Psychology, and Spanish.

Research

The GRE Board Research Committee, made up of Lincoln Moses, Stanford (Chairman), Joe McCarthy, University of Washington, Bernard Harleston, Tufts University, and Herb Weisinger, SUNY at Stony Brook, met four times in 1972-73 and considered and acted on a number of précis, proposals and drafts of research reports.

The following research projects were active or completed under the auspices of the GRE Board in 1972-73. Copies of completed research project reports are available upon request.

1. *The Development of a Biographical Inventory to Control the Effects of Differential Motivation on Predictive Accuracy*

In Progress. A biographical inventory, specifically designed to measure motivation with respect to academic achievement, is being developed. Two approaches to the evaluation of the effect of motivation on graduate school achievement are being stressed. The first method of evaluation emphasizes motivational scales as control variables; that is, estimating their differential effects on predictive accuracy when they are used as moderators of grouping variables. For example, a subgroup of individuals characterized by high motivation but low to moderate ability as measured by the GRE may be relatively unpredictable with respect to achievement in graduate school, while high ability accompanied by a high level of motivation may be a quite predictable subgroup.

2. *The Development and Field Testing of a Bayesian Approach to the Validation of the GRE and to the Prediction of Performance in Graduate Study*

Completed. The purpose of the present study is to overcome, at least in part, some of the obstacles to the conduct of meaningful validity studies at the graduate level through the application of Bayesian prediction techniques. These techniques allow the pooling of data from diverse sources to obtain performance estimates tailored to local data but supplemented by data from other institutions. They also allow a systematic means for increasing the influence of local data as the mass of such data accumulates. As a base line, the Bayesian methods will be compared with the commonly used least squares technique and pooled least squares techniques, thus allowing a separation

of the value of the pooling from the value of the purely Bayesian aspect of the prediction system.

The draft Final Report was submitted to the Research Committee in September, 1973.

3. *Cooperative Student Survey*

In Progress. This project is designed to obtain useful information about 1) the plans, expectations, and perceptions of college seniors, 2) the actual work or graduate or professional experiences of the same students a year later, and 3) the factors in the flow of talent after college.

The survey of college seniors has been completed and the technical report has been sent to GRE Board members and to the institutional representatives of the CGS member institutions.

The follow-up survey and the survey of additional first-year graduate and professional students has been completed. Data analysis is underway and a draft technical report on this phase of the project will be completed in September 1975 for submission to the Advisory Committee for the project.

It is planned that a book based on the project will be written during the coming year.

4. *Identification of Differential Test and Item Performance for Black and White Examinees*

Completed. The purpose of this study was to perform separate item and test analyses on the Undergraduate Program's Verbal and Quantitative Aptitude Tests and the Education, Sociology, History, and Literature Field Tests for both Black and White student samples.

The study ran into many methodological problems leading to inconclusive results. The final report will be published as an ETS Project Report.

5. *Validity Studies of GRE at Black Institutions*

Completed. The study was undertaken to examine the relationship between the Undergraduate Program's Aptitude Tests and grade point averages at five predominantly Black institutions and five predominantly White institutions. Since the content of these tests is very similar to that of the GRE Aptitude Test's and the educational level of the students taking the tests is the same, the results can be generalized to the GRE.

A first Draft Report was submitted to the Research Committee in June. A revised draft was submitted at the September 1973 committee meeting.

6. *Critical Incidents*

Completed. The purpose of this project was to better define the criteria by which graduate students are evaluated through the use of behavioral descriptions supplied by graduate faculty. A secondary objective was to contrast the relative importance of different criteria across three discipline areas representing the broad spectrum of graduate disciplines. Faculty members from each of the areas of psychology, chemistry, and English used a list of behavioral descriptions to describe the performance of graduate students with whom they have had contact. Each behavioral description included in the list was rated as to its degree of importance or relevance for each particular field by faculty members. Multivariate statistical methods, particularly factor analysis, were used to reduce the data matrix obtained to a few clusters of behavioral descriptions. Differences in factor structures across the three groups were also examined. Factor analyses have been done for both weighted versions being arrived at through the mean importance values given by faculty within the respective disciplines.

The final report was received by the committee in January 1973 and the results of the study are being used to develop rating scales for the evaluation of graduate students.

7. *A Study of the Relative Effectiveness of a Program of Coaching/ Instruction for the GRE-Q for Black, Chicano, and White GRE Candidates*

In Progress. This study is designed to determine the susceptibility of the GRE-Q and its various parts to a program of short term instruction and to determine the relative effectiveness of that program in raising the GRE-Q scores of candidates according to their distinct cultural background and sex. The study will be carried out in four parts: 1) feasibility; 2) exploratory; 3) developmental; and 4) operational. The feasibility study was conducted to determine if sufficient student and faculty cooperation can be obtained. A decision to continue the study was made based on the results of the feasibility study. The exploratory study will aid in the design and construction of curriculum and materials. The developmental phase of the study involves the actual design and production of curriculum materials. In the operational phase the program of instruction will be offered on several campuses and the results of that program assessed.

Curriculum materials have been developed and colleges and instructors have been recruited for the upcoming operational phase. A draft Final Report is anticipated for the January 1975 Research Committee meeting.

8. *Word Associations of Black and White College Students*

In Progress. The purpose of this project was to compare association responses for college students from four different kinds of colleges: 1) selective predominantly White colleges, 2) less selective predominantly White colleges, 3) selective predominantly Black colleges, and, 4) less selective predominantly Black colleges. Stimulus words were chosen from those used in Verbal Aptitude analogy and antonym items. Results should be of assistance to the Verbal Aptitude Department in constructing items appropriate to both ethnic groups as well as being of theoretical value.

Data analysis is underway and the draft Final Report will be submitted to the Research Committee at their January 1974 meeting.

9. *Women Doctoral Recipients in the U.S.: Trends in Their Professional Development and Their Current Status*

In Progress. The purpose of this study is to describe the current status and professional development of women who have received a doctorate during the past 22 years. A secondary purpose will be to obtain information on the views toward their own graduate training of both females and males with doctorates. The study will involve a survey of women and men matched on year of degree, field of study, and graduate school.

Data analysis is underway and the draft Final Report is expected in January, 1974.

10. *Effectiveness of GRE Fee Waiver Program*

Completed. The purpose of this project was to study the effectiveness of the GRE Fee Waiver Program in increasing the number of potentially qualified but financially disadvantaged students who give consideration to attending graduate school and who take action toward that end. The main instruments of the study were questionnaires sent to fee waiver recipients and interviews conducted with campus coordinators.

The Final Report was received by the Research Committee in June, 1973.

11. *A Priori Option Weighting*

Completed. The purpose of this study was to compare conventional formula scoring, empirical scoring, and *a priori* scoring with respect to reliability and validity. Independent samples were drawn from the June 1972 aptitude pretest section and scored by each of the three methods. Reliability coefficients and correlations with the Quantitative Aptitude Test scores were developed.

The Final Report was received by the Research Committee in January, 1973.

12. *A Longitudinal Study of the Role of Cognitive Styles in Academic Evolution During the College Years*

In Progress. The objectives of this study are: 1) to examine the part played by strength and weakness in two important and relatively independent cognitive domains—the field-dependence-independence or analytical-global cognitive style and verbal-comprehension skills—upon total academic progress through the four years of college; 2) to study the effect upon various aspects of college performance of a marked discrepancy in level of functioning in the analytical and verbal domains and to identify the source of these severe cognitive splits during development; 3) to examine the role of a more global or more analytical cognitive style in the verbal functioning of students who appear no different in standard tests of verbal comprehension; 4) to examine the influence of patterns of ability in the analytical and verbal comprehension domains upon the decision to go on to graduate school, the choice of graduate school made, and the area of specialization selected in graduate study; and, 5) to determine the degree to which academic interest and achievement at the high school level, viewed from the standpoint of cognitive style, are already predictive of performance in college and of orientation toward graduate school later on. To achieve these objectives a longitudinal study was conducted of the entire class of a large municipal college over their four years at school. In addition an intensive study was made of a selected sample of this group. The data gathered in this study will now be analyzed. In addition a follow-up study will be made of these students into the graduate school period and, through use of transcripts, their performance in the high school period will be assessed as well.

The first annual progress report will be submitted to the Board in September 1973. The Final Report is expected to be available in September, 1975.

13. *The Development of Measures for the Study of Creativity*

In Progress. The purpose of this study is to develop a set of tests to serve as intermediate or provisional criteria in subsequent investigations of processes involved in creative performance and of situational variables that influence creativity. These first tests would involve the area of research creativity in the behavioral sciences and would attempt to measure abilities such as are required of a scientist in the conceiving and planning of research activities and interpreting research data.

A progress report will be submitted to the Board in September, 1973. The draft Final Report is expected in April, 1974.

14. *Answering Analogy Items in the GRE-V: A Study of Verbal Analogies and of Instruction to Improve Analogy Test Performance*

In Progress. The purpose of this study is to get a more basic understanding of the logic or rationale underlying the verbal analogies used in the GRE-V. The second is to develop and evaluate, at a pilot-study level, a program of special instruction to improve analogy test performance. The instructional program will be directed toward both White and minority group candidates.

The study should provide information on such questions as 1) the respective roles of word association and generating and comparing relationships between paired words in answering analogy items, and 2) specific guessing strategies that may be most appropriate for this item type. It should also provide instructional materials and procedures that could be included in a later, more definitive study of instruction for analogies, sentence completions, and antonyms such as those used in the GRE-V.

The draft Final Report is expected in April, 1974.

15. *Research Review on Testing and Minority Groups*

In Progress. The purpose of this project is to review and summarize research, since the author's review in 1970, on testing practices and their interaction with the interests of ethnic minorities in higher education. The attempt will be made to discuss in nontechnical language the implications of the findings thus far.

Three papers dealing with particular aspects of the research have been written. A fourth will be submitted to the Research Committee in January, 1974.

16. *The Development and Pilot Testing of Criterion Rating Scales*

In Progress. The purpose of this study is to develop and field test a set of behaviorally anchored rating scales for use in the graduate school context. The scales will be based on the factors identified in the critical incidents study. The field test will consist of use of the scales on a pilot basis in a small number of chemistry, English, and psychology departments. The reliability and intercorrelation of the developed scales will be examined as well as their correlation with other available data.

The draft Final Report will be submitted to the Research Committee in April, 1974.

17. *The Assessment of Quality in Ph.D. Programs of Study*

In Progress. The purpose of this study is to identify the characteristics of Ph.D. programs that are judged to be most closely related to the achievement of educational quality, and to suggest some possible ways to measure these characteristics. About 60 graduate deans will serve as a panel of experts for the project. Their ratings on two questionnaires concerning the importance of various program characteristics for judgments about quality and the acceptability of suggested measurements will be summarized and reported to the GRE Board and the GREB-CGS Steering Committee for the project. The study is the first stage in a proposal for the empirical development of systematic procedures for the assessment of quality in Ph.D. programs.

The draft Final Report will be submitted in September, 1973.

MAY BRODBECK
JOSEPH L. MCCARTHY
LINCOLN E. MOSES
DONALD W. TAYLOR
RICHARD L. BURNS

September 5, 1973

REPORT OF THE TREASURER

DEAN MICHAEL J. BRENNAN

Our total receipts for the year ending 30 September 1973 were $8,362.64. These receipts include dues from member institutions. This is in effect a subvention paid by the Parent Institutions—the sales of the *Proceedings*, interest on savings accounts, and registration fees from the Annual Meeting.

Our total disbursements for the fiscal year aggregated to $12,485.22. These disbursements include the Annual Meeting expenses, the expenses of printing and editing of the *Proceedings*, committee meeting expenses, and expenses of the offices of the President and the Secretary. This year there was an additional expense which was a non-recurring one, the AGS's contribution to the Gustave O. Arlt Award in the amount of $1,000.00 which was voted by the membership at the meeting last year.

As a consequence, our deficit for the year amounted to $4,122.58. This compares with a deficit for the previous year of $2,864.61. Our asset position, which consists totally of cash in banks, totals $24,168.91 as of 30 September 1973. That compares with $28,291.49 on 30 September 1972.

Now I will be glad to answer questions or go into further detail.

Dean Bock:

Are you able to take advantage of high interest rates to decrease our current debt, and would you need permission from the Association to do so?

Dean Brennan:

This was discussed when I agreed to become Secretary and inherited seven different bank accounts. These accounts were stretched across the country. There was a high correlation between the location of the Secretary at the time and the location of a bank account. These were consolidated into a single account. In the year we ran our first sizeable deficit, the amount of money in the checking account and in what might be called the free savings account (i.e., funds that can be withdrawn on short notice) was minimized and the balance was put into savings certificates to maximize interest. These are standard savings association certificates now paying 7% per annum.

Dean Bock:

I might observe that our principal source of income is the subvention of our parent association, the AAU. We have pointed out to them that our current costs exceed the subvention. They have pointed out to us in turn that as long as we sit on such a large bank account we really should not come back to them until we look a little poorer.

Dean Brennan:

Some of this has to be looked at from a longer historical perspective. There are year-to-year fluctuations. Last year our deficit, for example, was in the neighborhood of $2,800.00. This year it is in the neighborhood of $4,000.00, but some of that is a matter of timing. David Redman and I are now working out arrangements with respect to the cost and income of the *Proceedings* to get them on a regular cycle. To illustrate, our income from sales of the Proceedings this fiscal year was $482.00; last year it was $1,948.00. But if you go back historically sales dropped back down to a small figure. I think we need to get income and expenditure into a given fiscal year so that they coincide. This will eliminate expenditures occurring in one year and income in the alternate year. Otherwise these annual ups and downs will continue.

Exhibit A

COMPARATIVE BALANCE SHEET
1972 and 1973

Assets

	September 30, 1973	*September 30, 1972*
Cash in Banks		
Checking Account	$ 3,787.88	$ 5,631.07
Savings Accounts	20,381.03	22,660.42
Total Assets	$ 24,168.91	$ 28,291.49

Fund Equity

Balance, October 1 (previous year)	$ 28,291.49	$ 31,138.10
Cash Increase (Decrease) (*Exhibit B*)	(4,122.58)	(2,846.61)
Balance, September	$ 24,168.91	$ 28,291.49

Exhibit B

COMPARATIVE INCOME AND EXPENSE STATEMENT
1972 and 1973

	Year Ended September 30, 1973	*Year Ended September 30, 1972*
Receipts:		
Dues from member institutions	$ 6,000.00	$ 6,000.00
Sales of *Proceedings*	482.03	1,948.05
Interest on savings accounts (as of bank's posting date)	1,220.61	1,340.92
Meeting Registration Fees	660.00	810.00
Total Receipts	$ 8,362.64	$ 10,098.97
Disbursements:		
Annual Meeting Expenses:		
Printing	332.01	308.49
Steno and Tape Recording	477.00	841.80
Travel and Honoraria (guests)	806.91	1,688.42
Other	1,087.23	1,135.95
Proceedings Expenses:	4,036.07	5,779.01
Committee Expenses:		
Executive Committee	1,202.13	560.09
Other Committees	1,947.68	1,252.42
Offices of the President & Secretary		
Supplies and Printing	781.44	781.34
Secretarial	646.75	484.50
Telephone and Postage	128.00	73.56
Other	40.00	40.00
AGS Contribution to Gustave O. Arlt Award	1,000.00	—
Total Disbursements	$ 12,485.22	$ 12,945.58
Cash Increase (Decrease)	(4,122.58)	(2,846.61)

REPORT OF THE EDITOR

THE JOURNAL OF PROCEEDINGS

The Journal of Proceedings and Addresses for the Twenty-fourth Annual Conference of the Association of Graduate Schools in the Association of American Universities was published in May 1973.

AAU-AGS Memberships	
AGS Deans	112
AAU Presidents and Chancellors	55
AAU Libraries	56
AGS Deans Emeriti and AGS Associates	19
Complimentary Copies	
Deans of CGS institutions (excluding AGS members)	237
Associations and Foundations	19
Foreign universities and foreign university libraries	44
Guests	2
Orders	
AGS Deans (additional copies)	86
Libraries	125
Others	10
Total	765

EXPENSES

Stenotype copy	$ 477.00
Editorial Assistance	168.72
Supplies	7.40
Miscellaneous printing	25.80
Typewriter rental	130.00
Xeroxing	14.35
Printing and distribution by Princeton University Press	2,961.81
Storage of back issues	40.00
	$3,825.08

RECEIPTS

Sale of copies from 1 October 1972 to 30 September 1973 less unpaid invoices	
24th Conference	$ 217.38
Earlier Conferences	106.00
	$ 323.38

17 October 1973

REPORT OF THE COMMITTEE ON RESOLUTIONS

BY DEAN SANFORD S. ELBERG

Mr. President, the Resolutions Committee labored long and has come up with several of great resolve.

1. Be it resolved that the membership of the Association of Graduate Schools in the Association of American Universities express its appreciation and gratitude for the hospitality extended to it during the Twenty-fifth Annual Conference in New Orleans. We especially acknowledge the very gracious and sumptuous reception given by Dean and Mrs. David Deener, as well as the courtesy of the staff of the Fairmont Roosevelt Hotel, a most felicitous choice of hotels in the area.

2. Be it further resolved that the Association express its appreciation for the leadership provided by the officers and extend our thanks to outgoing President, Dean Robert Bock and to our continuing Secretary-Treasurer Dean Michael Brennan and our best wishes to our newly-elected President, Dean Shirley Spragg.

3. Be it further resolved that the Association, mindful of the continuing need to improve opportunities for increased graduate school enrollment of minority students, hereby add its endorsement to the plans of the GRE Board to undertake a program designed to facilitate minority graduate student enrollment. Mr. Chairman, an explanation is in order. Approval of this resolution will not require anything more than the moral support of AGS for the request of the GRE Board to seek a grant to undertake this study.

4. Be it further resolved that AGS, concerned at the cacophony about accreditation standards today in the United States and mindful of the recent resolutions of the Association of American Colleges, request its Policies Committee to reopen the consideration of the criteria used in accreditation of our institutions and their programs for their appropriateness and their continued acceptability.

[Dean Bock asked if the Committee brought any suggestions or guidance for the Policy Committee on these specific accreditation problems. Dean Elberg said yes, that the criteria used by recent groups for the acceptability of the institution's program were other than of professional and/or academic relevance. They rested on such matters as, for example, the numbers of minority faculty and were based entirely on that. Accreditations, to put

it mildly, seemed to be going overboard with social relevance. Dean Bock reminded the delegates that any actions or recommendations of our Policy Committee would be brought back to the membership to decide whether they were appropriate. Then the Committee would have time to conduct a survey of the problem and identify it in more detail. J. Boyd Page suggested that the Policy Committee consider whether or not it wishes to confirm or reaffirm or ignore the joint statement of the National Commission of Accreditation of Council of Graduate Schools relating to the whole issue of graduate work. Dean Bock expressed the hope that the Committee would recommend endorsing that statement on the inappropriateness of general accreditation for graduate programs.]

5. Be it further resolved that the Association of Graduate Schools encourage by various means, such as task force special studies, the effort to reshape the contents and redefine the fields of graduate education to the ends that our graduate schools may better meet social needs, and better prepare degree recipients for careers outside of higher education.

6. Be it further resolved that, in light of the previous resolution, the Association of Graduate Schools, through its Executive and Policy Committees, examine the report of the Council of Graduate Schools, *Special Studies on Alternative Forms of Graduate Education*, and at that time establish its own working group to study the innovations made by AGS member schools in the area of program content and definition of fields, circulate this information to AGS Deans and make its progress report to the Association at the Twenty-sixth Annual Meeting and recommend at that time appropriate activity by AGS member institutions.

7. Be it further resolved that the Executive Committee identify from the study group those problems that can be appropriately worked out in collaboration with Doctor Charles Kidd's office, and an inventory be taken of the unique facilities and knowledge in various AGS institutions which could be employed in these collaborative studies. The results of such AGS studies should be available at the annual meeting for general discussion and possible action.

8. Be it further resolved that the Policy Committee or Executive Committee as appropriate, report at the annual meeting the range of problems it has considered for study group assignments.

[All the resolutions were passed unanimously.]

REPORT OF THE NOMINATING COMMITTEE

DEAN SANFORD S. ELBERG, CHAIRMAN

The Nominating Committee consisting of Dean Baker, Dean Taylor, and myself present for the Association's consideration the following candidates for membership: for Member at Large of the Executive Committee—Dean Lyle Jones; for Secretary-Treasurer and *in continuo*—Dean Michael J. Brennan; for Vice-President—Dean Lincoln Moses; and for President—Dean S. D. Shirley Spragg.

A motion to close nominations and to accept unanimously the nominations as presented was passed.

REMARKS OF THE NEW PRESIDENT, DEAN S. D. SHIRLEY SPRAGG, AND ADJOURNMENT

This part, traditionally and properly, is quite brief. First of all I want to say that I am humbled in the realization that I am interrupting a four-year dynasty of chemists in this job and trust that the AGS has taken this risk knowingly. Secondly, I shall be in touch with some of you in the near future with respect to committee assignments. The Resolutions Committee has very obviously and clearly told the Executive Committee, and through it some of our other committees, established and to-be-established, to get to work and do some constructive things this year. I hope when I get in touch with some of you to share in this work that you will be willing and eager to do so. Finally, I solicit your comments and suggestions with regard to next October's program.

[The 1974 meeting of the Association of Graduate Schools is scheduled to be held in Denver at approximately the same date as the 1973 meeting, that is, before October 22 and 23.]

Is there any new business to come before the organization? If not, I would entertain a motion for adjournment and assume that it has been seconded and passed.

OFFICERS AND COMMITTEES 1973-74

EXECUTIVE COMMITTEE

President
S. D. Shirley Spragg
University of Rochester

Vice-President
Lincoln E. Moses
Stanford University

Secretary-Treasurer
Michael J. Brennan
Brown University

Past President
Robert M. Bock
University of Wisconsin

Members-at-Large
Michael J. Pelczar, Jr.
University of Maryland
Lyle V. Jones
University of North Carolina

POLICIES IN GRADUATE EDUCATION

Harrison Shull, *Chairman*
Indiana University
David Deener
Tulane University
Sterling Huntley
California Institute of Technology
Michael J. Pelczar, Jr.
University of Maryland

NOMINATIONS

Sanford S. Elberg, *Chairman*
University of California, Berkeley
Donald W. Taylor
Yale University
Robert H. Baker
Northwestern University

TESTING

Donald W. Taylor, *Chairman*
Yale University
May Brodbeck
University of Minnesota
Richard L. Burns
Educational Testing Service
Joseph L. McCarthy
University of Washington
Lincoln E. Moses
Stanford University

COMMUNICATION WITH THE PUBLIC

John D. McCrone, *Chairman*
University of Iowa
Charles V. Kidd
AAU Council on Federal Relations
Lyle V. Jones
University of North Carolina
John C. McKinney
Duke University
May Brodbeck
University of Minnesota

MEMBERSHIP

Robert H. Baker
Northwestern University
Joseph L. McCarthy
University of Washington
S.D.S. Spragg
University of Rochester

RESOLUTIONS

Sanford S. Elberg, *Chairman*
University of California, Berkeley
D. C. Spriestersbach
University of Iowa
Donald D. Stokes
University of Michigan

Editor, *Journal of Proceedings and Addresses*
David N. Redman
Princeton University

THE CONSTITUTION

of

THE ASSOCIATION OF GRADUATE SCHOOLS

in the

ASSOCIATION OF AMERICAN UNIVERSITIES

I. NAME

This organization is called THE ASSOCIATION OF GRADUATE SCHOOLS IN THE ASSOCIATION OF AMERICAN UNIVERSITIES.

II. PURPOSE

It is founded for the purpose of considering matters of common interest relating to graduate study and research.

III. MEMBERSHIP

It is composed of member institutions of the Association of American Universities. When AAU membership includes a system of universities with separate graduate administrations, AGS membership shall extend to one graduate institution. Additional graduate schools from such systems may gain membership through petitions approved by two-thirds of the members of the Association of Graduate Schools.

IV. MEETINGS

The Association shall hold an annual conference at such time and place as the Executive Committee may direct.

V. OFFICERS

The officers of the Association shall be a President, a President-Elect (who shall serve as Vice-President), and a Secretary-Treasurer, and shall be elected annually.

These three, the immediate Past-President, and two Members-at-Large shall constitute the Executive Committee. The Members-at-Large shall serve two-year terms, one to be elected each year.

The officers, members of the Executive Committee, and members of other committees that may be appointed shall be selected as individuals and not as institutions.

VI. PROGRAM

The Executive Committee shall prepare a program for each meeting.

VII. VOTING POWER

At each conference, each member institution may have any number of representatives, but each member institution shall have a single vote cast by the graduate dean or that officer designated as its representative.

VIII. LIMITATION OF POWERS

No act of the Association shall be held to control the policy or line of action of any member institution. All actions shall be reported to the Association of American Universities.

IX. DUES

Dues are to be determined annually by the Association of American Universities after consultation with the Executive Committee of the Association of Graduate Schools, and shall be collected for each member of AGS by the Association of American Universities.

X. ADOPTION AND AMENDMENTS

This constitution shall become effective upon approval in writing by the graduate deans or officers responsible for graduate work in two-thirds of the member institutions of the Association and by approval of the Association of American Universities.

Amendments to this constitution may be adopted by a two-thirds vote of the member institutions of the Association and shall become effective when approved by the Association of American Universities.

OFFICERS OF THE ASSOCIATION OF GRADUATE SCHOOLS
1949-74

1949-50

President—Arthur R. Tebbutt; Vice-President—Hugh S. Taylor; Secretary-Treasurer—N. Paul Hudson

1950-51

President—Hugh S. Taylor; Vice-President—William R. Dennes; Secretary-Treasurer—N. Paul Hudson

1951-52

President—William R. Dennes; Vice-President—Henry E. Bent; Secretary-Treasurer—Carl Tolman

1952-53

President—Henry E. Bent; Vice-President—N. Paul Hudson; Secretary-Treasurer—Carl Tolman

1953-54

President—N. Paul Hudson; Vice-President—David L. Thomson; Secretary-Treasurer—Carl Tolman

1954-55

President—David L. Thomson; Vice-President—Harold W. Stoke; Secretary-Treasurer—Ralph E. Cleland

1955-56

President—Harold W. Stoke; Vice-President—Ralph A. Sawyer; Secretary-Treasurer—Ralph E. Cleland

1956-57

President—Ralph A. Sawyer; Vice-President—Leonard B. Beach; Secretary-Treasurer—Ralph E. Cleland

1957-58

President—Leonard B. Beach; Vice-President—C. A. Elvehjem; Secretary-Treasurer—Lewis M. Hammond

1958-59

President—Walter F. Loehwing; Vice-President—A. R. Gordon; Secretary-Treasurer—Lewis M. Hammond

1959-60

President—J. Petersen Elder; Vice-President—Frederick T. Wall; Acting Secretary-Treasurer—J. Homer Herriott

1960-61

President—Frederick T. Wall; Vice-President—Moody E. Prior; Secretary-Treasurer—Everett Walters

1961-62

President—Moody E. Prior; Vice-President—Roy F. Nichols; Secretary-Treasurer—Everett Walters

1962-63

President—Roy F. Nichols; Vice-President—John C. Weaver; Secretary-Treasurer—Lewis E. Hahn

1963-64

President—John C. Weaver; Vice-President—R. Bruce Lindsay; Secretary-Treasurer—S. D. S. Spragg

1964-65

President—R. Bruce Lindsay; Vice-President—Sanford S. Elberg; Secretary-Treasurer—S. D. S. Spragg

1965-66

President—Sanford S. Elberg; Vice-President—Joseph L. McCarthy; Secretary-Treasurer—S. D. S. Spragg

1966-67

President—Joseph L. McCarthy; Vice-President—John Perry Miller; Secretary-Treasurer—S. D. S. Spragg

1967-68

President—John Perry Miller; Vice-President—Frederic Bohnenblust; Secretary-Treasurer—Daniel Alpert

1968-69

President—Frederic Bohnenblust; Vice-President—Bryce Crawford, Jr.; Secretary-Treasurer—Daniel Alpert

1969-70

President—Bryce Crawford, Jr.; Vice-President—W. Donald Cooke; Secretary-Treasurer—Michael J. Brennan

1970-71

President—W. Donald Cooke; Vice-President—Robert H. Baker; Secretary-Treasurer—Michael J. Brennan

1971-72

President—Robert H. Baker; Vice-President—Robert M. Bock; Secretary-Treasurer—Michael J. Brennan

1972-73

President—Robert M. Bock; Vice-President—S. D. S. Spragg; Secretary-Treasurer—Michael J. Brennan

1973-74

President—S.D.S. Spragg; Vice-President—Lincoln E. Moses; Secretary-Treasurer—Michael J. Brennan

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Acting Dean Jaroslav Pelikan

APPENDIX

A Summary List of Measures for the Assessment of Quality in Ph.D. Programs

Notes

1. Importance ratings of program characteristics:
   4 = Essential to have information about this characteristic in order to judge quality
   3 = Important to have this information
   2 = Perhaps useful; not particularly important
   1 = Not important to judgments about quality
   (This scale reverses the one used in Appendix B to tabulate results of the first questionnaire, in order to obtain greater ease of interpretation.)
2. Mean importance ratings in this summary are the inverse of the grand mean of the ratings for each of the three program purposes reported in the last column of Appendix B. A specific assessment plan should consider these more specific ratings depending upon the primary purpose of the programs to be studied.
3. Adequacy ratings of measures:
   4 = Very good indicator of the quality of given characteristic
   3 = Good indicator
   2 = Poor but useable indicator
   1 = Inadequate indicator
4. The "percent preferred" column represents the percent of 43 respondents who selected this measure as their first-choice or preferred measure for a given characteristic.
5. The "percent available" column represents the percent of 43 respondents who indicated that the information could be supplied from records without new data collection. Responses generally ran 37 to 40 out of 43; therefore, 10 to 15 percent of the total often are non-respondents. The number of deans who say the availability of information varies from department to department, in addition to being generally available, can be determined from Appendix C.

Note especially that the characteristics in each section of this list are also listed in comparable sections of Appendices B and C, and the measures in each section are also listed in comparable sections of Appendix C, but the order of arrangement is different to reflect the results of importance and adequacy ratings on the two questionnaires.